

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1505.—Vol. XXXIV.

LONDON, SATURDAY, JUNE 25, 1864.

(WITH SUPPLEMENT) (STAMPED.....SIXPENCE. UNSTAMPED.....FIVEPENCE.)

MR. JAMES CROFTS, SHAREBROKER,
No. 1, FINCH LANE, CORNHILL.
Mr. Crofts transacts business, in the way of PURCHASE or SALE, in every description of stocks, but particularly in BRITISH MINES, in no case departing from the position of a broker, at net prices. All orders meet with the utmost punctuality and speed, and advice given as to the nature and eligibility of INVESTMENTS, when required. Mr. Crofts, from a lengthened experience of the Mining Market, is competent to advise as to the merits of any mine, and the desirability of buying, selling, or exchanging shares. To the latter department he devotes particular attention.
* A list of SHARES TO BUY, carefully studied, so as to lead to successful results in a short time, will be forwarded on application. Market highly in favour of purchasers.
* See Mr. Crofts' weekly letter, on p. 452.

MR. JAMES LANE, No. 44, THREADNEEDLE STREET, LONDON, E.C.
JAMES LANE has FOR SALE at net prices:—5 Basset and Grylls, £10; 10 Boscawen, £24; 50 Crebore, 47s. 6d.; 10 East Carn Brea, £34; 50 East Providence, £4; 20 Great Wheal Busy, £24; 10 East Lovell, £19; 10 East Seton, 9s.; 30 Great East Lovell, £24; 5 Great Wheal Fortune, £15; 20 Hallenbeagle, £14; 10 Marke Valley, £24; 30 North Basset, 30s.; 50 New Birch Tor and Vitor, £3; 30 New Wheal Rose; 10 North Trekerby, £24; 10 North Devon, £1; 20 North Golch Hill, 21s. 6d.; 20 Fendron Consols, £14; 35 St. Day United; 10 Sithney and Carmarthen, £6; 5 Sithney Wheal Metal, £24; 10 Trevelyan, £3; 10 Kitty (St. Agnes), £6; 20 Wheal Grenville, £24; 3 West Frances, £20.

EAST WHEAL LOVELL.—When the shares in this mine were selling at a THIRD OF THE PRESENT PRICE, I called particular attention to this property, and I still recommend a purchase of the shares at the present low price. Friday evening—closing price, £17½ to £18½.
79, Old Broad-street, London, E.C., June 24, 1864.

CAPITALISTS AND SHAREHOLDERS IN MINES.
It will do well to read the "Weekly Circular," published by Peter Watson, of Friday, 10th of June, No. 228, Vol. VIII.; Friday, 17th of June, No. 227; and Friday, 24th of June, No. 226. Price 6d. each copy (post paid). Forwarded on application. In his "Circular" there are several mines mentioned, which are certain to pay good interest, and the price of shares greatly and quickly advance in market value. Important information is also given as to main causes of the recent great depreciation in the market value of some of the most prominent dividend and progressive mines.
79, Old Broad-street, London, E.C., June 24, 1864.

PETER WATSON'S WEEKLY MINING CIRCULAR AND SHARE LIST, published every Friday, price 6d. each copy, forwarded on application. This Circular contains weekly important information with respect to all the principal dividend and progressive mines in Devon and Cornwall.
79, Old Broad-street, London, E.C.

STOCK AND SHAREDEALER.—**MR. PETER WATSON,** ENGLISH AND FOREIGN STOCK, SHARE, AND MINING OFFICES, 79, OLD BROAD-STREET, LONDON, E.C.
TELEGRAPHIC MESSAGES TO BUY OR SELL Railway, Bank, Mine, and other Shares and Stocks, punctually attended to on commission, or at net prices for cash, or for fortnightly settlements, with advice as to purchases or sales.
Nineteen years' experience.
(Two in Cornwall and Seventeen in London.)

Bankers: Union Bank of London, and the Alliance Bank of London and Liverpool.
Every information can be obtained on personal application or by letter, as to purchases and sales of mines and other shares, and the best investment for capital.
From the close proximity of his Offices to the Stock Exchange, as well as the Mining Exchange, PETER WATSON is enabled to act with promptitude on all orders entrusted to him, which at all times are carried out with punctuality, and to the best advantage of his clients.—June 24, 1864.

MR. LELEAN, STOCK AND SHAREDEALER,
11, ROYAL EXCHANGE, LONDON, E.C.
Shares bought and sold on the usual commission. Telegraphic messages promptly attended to. Mines inspected, and reliable information given. Established 15 years.
MR. LELEAN recommends the purchase of Great Laxey, Great South Chiverton, and a few other mines. Names and prices furnished on application.—June 24, 1864.

MR. WM. BIRDSEY, MINE AND SHAREBROKER,
No. 2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

MR. E. GOMPERS, MINING OFFICES,
3, CROWN CHAMBERS, THREADNEEDLE STREET, LONDON, E.C.
BUSINESS TRANSACTIONS IN BRITISH AND FOREIGN STOCKS AND SHARES.
Terms, 1¼ per cent. Bankers: London and Westminster Bank.

MR. WALTER TREGELLAS, STOCK AND SHAREBROKER,
12, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

WILLIAM BARTLETT, STOCK AND SHAREBROKER,
MINING EXCHANGE, AND No. 2, BUCKLESBURY, LONDON, E.C.
Advice given as to the safest and best paying investments.
Bankers: Alliance Bank.

MESSRS. WARD AND JACKMAN, STOCK AND MINING SHAREBROKERS, 2, ADAM'S COURT, OLD BROAD STREET, AND MINING EXCHANGE, LONDON, E.C. (ESTABLISHED ELEVEN YEARS.)
TELEGRAPHIC BUSINESS IN BRITISH AND FOREIGN MINING SHARES AND OTHER SECURITIES, at the lowest prices, nett or on commission, but not being DEALERS only execute orders confined to them.
Telegraphic messages to buy or sell shares of every description promptly executed for immediate cash, or for the fortnightly settlements.
Commission, 1¼ per cent. on all transactions.
June 24, 1864. Bankers: London and Westminster, Lothbury.

INVESTMENTS FOR CAPITAL.
Paying 10 to 20 per cent. per annum in bi-monthly and quarterly dividends.
SHARPS RAILWAY, BANKING, MINING, AND INVESTMENT CIRCULAR.
(Gratis and post free.)
Should be CONSULTED by the PUBLIC before INVESTING. It contains reliable information and advice to capitalists. Reports on Mines, Railways, Banks, Insurance, Dock, Loans, and all Financial Companies, &c., Record of Market Prices, and is the only SAFE GUIDE for the Investment of Capital.
HENRY GOULD SHARP, 32, POULTREY, LONDON, E.C. Established 12 years.

MR. JOHN BATTERS, STOCK AND MINING SHAREBROKER, 13, THROGMORTON STREET, LONDON, E.C., pays particular attention to British Lead, Copper, and Tin Mines, for which he solicits orders to sell or buy, at net prices.
FOR SALE:—50 East Seton, 4s. 9d.; 3 Gribbler and St. Aubyn, £3; 5 Rosewarne United; 20 East Russell, £44; 50 Chiverton Valley; 1 Wentworth Consols.
BUYER of Central Miners and Albert Life Insurance. State number and lowest price.

GEORGE RICE, SHAREBROKER, 5, COWPER'S COURT, BIRCHIN LANE, LONDON, (21 years' experience), has SPECIAL BUSINESS, as BUYER or SELLER, for cash or account, in the following mines:—

| Closing quotations. | Closing quotations. |
|------------------------------------|-------------------------|
| Chiverton £103-11 | New Rosewarne £84-9 |
| Clifford Amalgamated 32½-33 | North Trekerby 13½-2 |
| Devon & Bedford (Colch) 10s. prem. | Prosper United 4-4½ |
| East Lovell 17½-17¾ | Nanglies 26-27 |
| East Caradon 29½-29¾ | Wheal Crebore 46s.-47s. |
| East Russell 7½-8 | West Chiverton 70-75 |
| East Carn Brea 7½-8 | Wheal Grenville 7-7½ |
| East Grenville 4½-5 | Wheal Seton 220-225 |
| Great Wheal Vor 30-31 | Wheal Hope 33½-34 |
| Marke Valley 5-5½ | |

TO SHAREHOLDERS AND SPECULATORS.—After you have read and considered the various "published" reports and opinions upon the several mines now before the public, apply to GEORGE RICE for his "private" advice as to buying or selling. As you know you have made precious little money by following the "published" opinions and advice, apply at once.
Money advanced on mining shares.
June 24, 1864. Bankers: Bank of London.

MR. GEORGE BUDGE, SHAREBROKER, No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 17 years), has FOR SALE at net prices:—150 Santa Barbara, 9s. 6d.; 1 West Damsel, £85; 50 East Grenville, £4 18s. 9d.; 20 Hington Down, £44; 3 Buller; 5 Tincroft, £184; 30 North Trekerby, £2; 10 Great Wheal Vor, £24; 30 Great South Tolgus, £24; 25 East Carn Brea, £24; 150 Vale of Towry, 4s. 9d.; 15 Wheal Ury, £57; 100 Garreg, 9d.; 125 Don Pedro, 11s. 6d.; 50 Bryntall; 300 Rosa Grande, 4s.; 100 Wh. Hartley, 10s. 6d.; 150 Wentworth Consols, £14; 100 Merilyn, 9d.; 50 Okel Tor, £24; 100 South Grenville, 8s. 6d.; 80 Redmoor, 3s. 6d.; 50 Wheal Unity, 5s. 9d.; 125 East Seton, 8s. 6d.; 40 North Devon, 10s. 6d.; 200 Anglo-Brazilian, 6s. 6d.; 50 Kelly Bray, 10s.; 25 Cape Copper, £114; 30 Frank Mills; 200 East Del Rey, 15s.; 100 Port Phillip, £1 3s. 9d.; 100 Gawn, 20s.; 35 North Basset; 55 North Minera (Preference); 100 Prince of Wales, 6s. 6d.; 50 South Miners; 100 Wheal Pollard, 2s. 6d.; 50 Wheal Union.

GEORGE MOORE,
1, CROWN COURT, THREADNEEDLE STREET.

JAMES HERRON has FOR SALE the following SHARES, at the prices quoted, and FREE OF COMMISSION:—
1 Anglo-Brazilian, 5s. 9d.
10 Great Grylls.
50 Great Wheal Metal.
1 Buller, £267.
20 Grylls Wheal Florence (an offer wanted).
10 Hallenbeagle, £44.
20 Hawkmoor.
25 Carn Camborne, 17s.
10 Clifford Amalgamated.
5 Crane.
5 Cwm Erwin, £294.
1 Carn Brea, £56.
1 Caradon Consols, £10.
10 Grenver Abraham.
10 Chiverton Val., £44.
20 Camborne Veau, £24.
20 Drake Walls.
1 Devon Great Consols.
100 Dale, 9s.
100 Don Pedro, 11s. 6d.
20 E. Carn Brea, £7 18 9d.
20 East Russell, £44.
10 East Lovell, £17 18s 3d.
20 E. Grenville, £4 18s 9d.
10 East Vor, £5.
20 East Seton, 9s. 9d.
20 East Del Rey, 12s.
5 East Caradon, £294.
20 East Rosewarne, £3.
5 East Trekerby.
5 East Grylls, £114.
5 Gt. Wh. Vor, £30 18s 9d.
30 Great Busy, £2 18s. 9d.
1 Great Fortune, £14.
30 Great Devon & Bedford.
20 Gt. No. Downs, £5 18 9
20 Gonnemena, £37½.
100 Gt. Nor. Copper, 9d.
20 Glas. Caradon, £3 13s 9
20 Gt. E. Lovell, £3 2s. 6d.
20 Great Retallack, 5s. 3d.
10 Great Laxey.
50 Garreg, 6d.
10 Gt. S. Tolgus, £2 18s 9d
40 Great South Chiverton.
100 Santa Barbara, 9s. 9d.
10 Gt. S. Tolgus, £2 18s 9d
50 So. Carn Brea, 15s.
100 Santa Barbara, 9s. 9d.
10 West Martha, 19s.
1 South Frances.
20 So. Caradon Hooper.
50 South Grenville, 7s. 9d.
50 St. Day United, 30s. 9d.
50 Smith, Knight's Co.
20 St. John del Rey.
2 Stray Park, £294.
50 St. David's Gold, 7s. 9d.
1 Treawny, £19 17s. 6d.
20 Tywarballe (an offer wanted).
10 Tolwadden, 24s. 6d.
100 Vale of Towry.
10 Vagra and Clogau.
20 West Wheal Vor.
20 Wheal Hartley, 12s 9d
1 W. Chiverton, £71½.
30 West Grylls, 18s.
70 Wheal Pollard.
10 Wheal Edward.
4 Wheal Kitty (Leland), £12½.
1 Wheal Seton, £223.
50 Welsh Gold, 17s. 6d.
1 West Sharp Tor, £30.
1 West Harriet, £184.
10 Wh. Grenville, £7 6 9
10 West Condurrow.
10 Wheal Haurie, 7s.
5 Wentworth, £14½.
1 Wheal Rose, £14½.
1 West Seton, £233.
5 Wh. Ludcott, £2 6s 3d
2 Wheal Margaret, £11
100 Worthing, 18s. 6d.
2 Wheal Crebore, 46s.
10 Wheal Ury, £57.
20 Wheal Unity, 6s.
20 Wheal Harriet.
50 Worrans Downs.
50 Yadanamantun, £3.
50 Wheal Caradon (offer).
10 West Martha, 19s.

And is a BUYER of 1 South Caradon, 5 Nanglies, 20 Bryntall, 50 St. Day United, 30 North Pool, and 10 St. John del Rey.
2, Adam's-court, Old Broad-street, June 24, 1864.

MESSRS. VIVIAN AND REYNOLDS, 37, OLD BROAD STREET, LONDON, E.C., MINING ENGINEERS, INSPECTORS OF MINES, COMMISSION, AND GENERAL AGENTS for the PURCHASE or SALE of MINE SHARES, RAILWAY, AND EVERY OTHER DESCRIPTION OF STOCK.
Commission on share transactions 1¼ per cent. on £100 and above, and 2¼ per cent. on less sums.

MR. EDWARD COOKE, MINING SHAREBROKER,
75, OLD BROAD STREET, LONDON, E.C. Reliable information given on application, relative to the merits of mines, either for speculation or investment.
MR. EDWARD COOKE having visited East Lovell Mine will be very happy to afford reliable information relative to the same.
June 24, 1864. Bankers: Alliance Bank, Lothbury.

MR. GEORGE BATTERS strongly recommends his friends to buy Tincroft, West Chiverton, Chiverton, Herodasot, South Caradon, Devon Great Consols, Great Wheal Vor, Chiverton Valley, Prosper United, Wentworth Consols, and Sithney Wheal Metal for investment. These shares will pay good interest for money at present quotations.—76, Old Broad-street, E.C.

THOMAS HAMILTON (late of Truro), STOCK AND SHAREBROKER,
4, AUSTINFRIARS, OLD BROAD STREET, LONDON, E.C.
Mine shares bought and sold on the usual commission.

JAMES HUME, SHAREBROKER, 74, OLD BROAD STREET, AND MINING EXCHANGE, LONDON, E.C.
MR. HUME'S Circular for June 9 will be forwarded on application, and contains special reports and remarks on the leading metal mines. Price 6d. per copy; subscription, 5s. per annum.
Bankers: London Joint-Stock Bank.

RICHARD CLIFT, MINE SHAREDEALER,
late of Redruth, now 48, THREADNEEDLE-STREET, LONDON, where all letters are to be addressed.

MR. JOHN B. REYNOLDS has REMOVED from 37, Old Broad-street, to 64, THREADNEEDLE STREET.

MR. H. WADDINGTON, MINING AND SHAREBROKER,
20, THROGMORTON STREET, LONDON, E.C.
Shares in railways, mines, &c., bought and sold on the usual commission.

JOHN RISLEY, 32, LOMBARD STREET, LONDON, E.C.
SHARES IN MINES BOUGHT AND SOLD on commission, at 1¼ per cent., for immediate cash. Bankers: London and Westminster, Lothbury.

MR. WILLIAM WARD (late with Messrs. Dunsford and Ranken), SHAREBROKER, 29, THREADNEEDLE STREET, LONDON, E.C., transacts business in British and Foreign Mine Shares, and other securities, at the lowest prices, but not being a dealer only executes orders entrusted to him. Telegrams to buy or sell for cash or for the fortnightly settlements promptly attended to.
In any business that W. WARD is favoured with, in which he is the buyer, he will give cash on receipt of transfer.
Commission, 1¼ per cent. on all transactions.
Bankers: City Bank.

DEVON COPPER MINE (COST-BOOK).—Three-fourths of the shares in this unusually promising undertaking having been taken up by private means (chiefly locally), the remaining 1000 shares are now for the first time offered to the public.
Prospectuses, with the opinions of men in whom the mining world places well-deserved confidence, can be obtained of the Secretary, or of Mr. W. WARD, 29, Threadneedle-street, E.C., where specimens fresh from the mine can also be seen. Applications for shares should be made early, allotment going by priority; and, as the mine is daily improving, those desirous of joining a bona fide concern, offering more than ordinary promise of early success, may soon find that the chance of doing so, at the nominal price at which it may now be done, is gone by. Inspection is freely invited.

MR. T. ROSEWARNE, 81, OLD BROAD STREET, LONDON, E.C., has FOR SALE:—
Bryntall, £234.
Chiverton, £11.
East Russell, £44.
East Lovell, £18.
East Rosewarne, £3 1 3.
East Carn Brea, £57.
East Vor, £44.
East Grenville, £57.
And is a BUYER of—
Brigun, 30s.
East Carn Brea, £73½.
Great Laxey, £14.
Nanglies, £26½.
East Wheal Grenville, and East Carn Brea Mines inspected this week, is enabled to advise parties about to operate.
June 24, 1864. Bankers: Bank of London.

MR. J. P. ENDEAN, STOCK AND SHAREBROKER,
1, CROWN COURT, OLD BROAD STREET, LONDON, E.C.
Having had 25 years' experience in the mining districts of Devon and Cornwall, and three in the London market, with daily information of important changes from qualified agents, also the most authentic reports relating to other investments, he is in a position to afford the earliest information to his clients, and to direct capitalists whether to buy or sell in mines, railways, or other securities.
Investors should apply to him for reliable information relative to the Chiverton Mines, also the Camborne and Hlogan districts.
A carefully selected list of sound progressive and dividend shares (certain to give a large percentage immediately) forwarded on receipt of 5s. in stamps.
Orders and telegrams receive immediate attention.

MR. T. P. THOMAS, MINING AGENT AND AUCTIONEER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

MR. T. E. W. THOMAS, MINING AGENT AND GENERAL MINING SHAREDEALER,
2, PINNER'S COURT, OLD BROAD STREET, LONDON.
MR. T. E. W. THOMAS strongly recommends the purchase of Wheal Grenville shares at present rates.

MR. FRANCIS G. LANE, No. 2, ROYAL EXCHANGE, LONDON, E.C., has the following SHARES FOR SALE:—
10 Great Laxey, £147½.
25 East Rosewarne, £3.
50 North Basset, £14.
25 St. Just United, £2.
50 Great Devon & Bedford.
10 Sithney Carnmeal, £24.
20 Great No. Downs, £24.
20 Carn Camborne, 16s 6d.
100 West Condurrow.
5 Vagra and Clogau, £29.
50 East Russell, £44.
20 North Trekerby, £24.
10 Wh. Prosper (Brage), £34.
50 Date, 3s. 6d.
30 Quebrada (£5 10s paid), £43.
Parties of respectability can have transfers registered in their names previous to payment.
Bankers: London and County Bank.

MR. F. W. MANSELL, MINING SHAREBROKER,
75, OLD BROAD STREET, LONDON, E.C.

MR. JOHN R. PIKE, GENERAL SHAREDEALER,
OFFERS his SERVICES to INVESTORS.
3, PINNER'S COURT, OLD BROAD STREET, LONDON.

SHARES WANTED IN THE FOLLOWING MINES:—
Kitty (Leland). Rosewarne United. Ding Dong.
Gonnemena. Trencrom. Camborne Veau.
Gribbler & St. Aubyn. West Stray Park. Bryntall.
South Frances. West Stray Park. HUBERT BARNES RYE.
Mining Offices, 77, Old Broad-street, London, June 24, 1864.

WILLIAM SEWARD, MINING BROKER, STOCK AND SHAREDEALER, 19, THROGMORTON STREET, LONDON, E.C.
Commission, 1¼ per cent. on all transactions.

MR. THOS. THOMPSON, MINING OFFICES,
12, OLD JEWRY CHAMBERS, LONDON, E.C.

MR. G. D. SANDY, SHAREDEALER, No. 48, THREADNEEDLE STREET, LONDON, E.C.
MR. SANDY can confidently recommend two or three mines certain to have a great rise during the present year. Intending purchasers should apply at once.
A correct daily price list will be forwarded on application.
Business transacted at the closest market prices.

MESSRS. ROBERTS AND CO., 31, NEW BROAD STREET, E.C., have selected a LIST OF DIVIDEND AND PROGRESSIVE MINES which they can strongly recommend. Also, Bank, Railway, and other shares.
Commission, 1¼ per cent.
Office of Roberts and Co.'s "Price List and Stock and Share Reporter," price 3d.

WILLIAM ALLISON, STOCK, SHARE, AND MINING BROKER, 29, AUSTINFRIARS, LONDON, E.C.
Orders to buy or sell, accompanied by references, punctually attended to.

MR. J. W. GILBERT, MINE SHAREBROKER,
1, PINNER'S COURT, OLD BROAD STREET, LONDON.

JOSEPH GREGORY, STOCK AND SHAREBROKER,
2, HATTON COURT, THREADNEEDLE STREET, LONDON, E.C.
Commission on purchase and sale of mining shares, 1¼ per cent.
Bankers: City Bank.

MR. J. H. COCK (late of Redruth), STOCK AND MINE SHAREBROKER,
3, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
J. H. Cock, having had 12 years' experience in the mining market at Redruth, is in a position to give sound advice to those about to buy or sell mining property.

MATTHEW GREENE, MINING SHAREBROKER,
27, AUSTINFRIARS, LONDON, E.C., has SPECIAL BUSINESS, as BUYER or SELLER, in the FOLLOWING SHARES, at the prices annexed:—
50 Crebore, 47s. 50 East Grenville, £5 2 6 100 Great Retallack, 5s.
50 East Rosewarne, £3 1 3 100 Gt. South Chiverton, 40s. 35 St. Just United, £14.
5 East Caradon, £19. 5 Great Laxey, £14½.
Shares bought and sold on the usual commission.

MR. D. STICKLAND, M.E., having had upwards of 40 years' mining experience in Cornwall, several years of which he has had the entire management of mines therein, enables him to GIVE GOOD ADVICE thereon. MINES INSPECTED and faithfully REPORTED ON. DEALER in MINING, RAILWAY, and OTHER SHARES.
His monthly "Circular" for April contains a selected list of Cornish and other mines. Forwarded on receipt of six postage stamps.
38, Dowgate-hill Chambers, London, E.C.

KING AND CO., MINING AND SHAREBROKERS,
ELDON CHAMBERS, LIVERPOOL.

FOR SALE, SEVENTY-FIVE or ONE HUNDRED BEDOL-AUR SHARES. A fair offer will be accepted, 12s. per share being paid.—Apply to "D. E." MINING JOURNAL office, 26, Fleet-street, London, E.C.

FOR SALE:—10 South Kensington Hotel shares (£10 paid), at 1¼ discount. And an OFFER WANTED for 25 St. Just United shares.—Apply to MR. EMERSON, St. Michael's House, St. Michael's-alley, Cornhill, London.

FOR SALE, a VALUABLE SLATE QUARRY in MERIONETHSHIRE, partially opened.—Address, WALTER THOMSON, Esq., Copthall-buildings, Throgmorton-street, E.C.

A HOLDER of the UNDERMENTIONED SHARES, who has offered them to dealers at their lowest quoted prices, but in vain, now OFFERS THEM to the public, in one lot, for a SUM CONSIDERABLY UNDER the LOWEST PRICES QUOTED or ADVERTISED:—
28 Chiverton. 30 Mineral Bottom.
10 Wentworth Consols. 19 Pentre Llygan.
Address by letter, to "A. B." Thomas's newspaper office, 23, Great Marylebone-street.

A MECHANICAL ENGINEER, of long practical experience, DESIRES an ENGAGEMENT, where thorough knowledge of every branch of his profession would be appreciated. Immediate employment would be of greater consideration than the commencing salary.—Address, "N. Z." MINING JOURNAL office, 26, Fleet-street, London, E.C.

WANTED, by a Cornish captain, a SITUATION, at home or abroad, either in a TIN, LEAD, or COPPER MINE, as UNDERGROUND AGENT or DRESSER. The advertiser has had many years' experience, and is well acquainted with mining in all its branches. Testimonials as to character and ability, with unexceptionable references, can be produced.—For particulars, apply to "G. O." MINING JOURNAL office, 26, Fleet-street, London, E.C.

ISAAC FRANCIS, NANT, WREXHAM, a dresser of 30 years' experience, is OPEN to INSPECT any DRESSING PLACE on moderate terms. MR. FRANCIS can introduce PLANS of IMPROVEMENTS that will SAVE THIRTY PER CENT. COST in certain departments of any dressing floors.

ELFORD, WILLIAMS, AND CO.,
COPPER ORE WHARFINGERS,
METAL AND GENERAL COMMISSION AGENTS,
SWANSEA.

MANCHESTER.
MR. W. HANNAM, MINING, SLATE QUARRYING, INSURANCE, AND GENERAL SHAREBROKER,
ROYAL EXCHANGE BUILDINGS, KING STREET, MANCHESTER.
A Monthly Investment Circular on application.

HALSE'S WEEKLY MINING AND SHARE CIRCULAR.
No. 17 will be ready on Monday. Speculators who may wish to have it regularly mailed to them for the quarter should send 18 stamps to Mr. HALSE, 25, Threadneedle-street. No charge is made for the Circular.
MR. HALSE has FOR SALE shares in Grylls Wheal Florence, Wheal Unity, West Wheal Trevelyan, East Seton, and Kelly Bray, at very low prices.

Original Correspondence.

COLLIERY ACCIDENTS RELIEF FUNDS.

SIR.—I have read with much pleasure your account, in last week's *Journal*, of the proposition to establish a Colliery Accidents Relief Fund for North Staffordshire, and certainly think that the system of giving bodies of colliers the power of recommending their fellow-workmen for relief is one that will find much favour. I am inclined to think that for each death by colliery accidents there are about five non-fatal accidents of a severe nature, and, perhaps, ten slight ones, which would not throw a man on the fund for more than a week or a fortnight. On the average ten fatal accidents leave two widows and ten children to provide for. This would be equivalent to about 5 per cent. of those employed in collieries continually on the funds, so that a contribution of 2d. per week from each man and 1d. per week from each boy would, I should suppose, be all that need be asked for. If the necessary relief can be afforded for this, I cannot see what is to prevent the scheme succeeding. I do not know the scale of the North Staffordshire Infirmary recommendations. Assuming each one guinea subscription to give the right to keep one man on the books, every colliery employing ten men and four boys would contribute enough to place the equivalent of one man upon the fund each year; and I much doubt whether the average casualties would reach anything like that.

From the large experience which Mr. Horton Wynne has had in connection with collieries, I know no one who is better able to give the exact probable charge upon the funds than he is, or to calculate the allowances that would meet the exigencies of each case. By making the society, as it is proposed to do, to a great extent self-supporting, there will be no fear of failure, either from want of the co-operation of the colliers, or from any shortness of funds. It would be highly interesting to many readers of the *Mining Journal*, I am sure, if Mr. Wynne would give some account of the tables he proposes, and the bases upon which they are calculated. It would give the men great confidence were it shown the rate per week that each would have to contribute, and the benefits to be received. I am aware that the rate per week will depend upon the number of subscriptions made; and that every ten men and four boys contributing, the former 2d. and the latter 1d. per week, would be enabled to give 5l. 5s. annually to the fund; but I should like to see published the details of the scheme; it would be extremely valuable, as affording suggestions to other districts.

June 20.

CARBON.

[A subscription of 1l. 1s. to the North Staffordshire Infirmary gives the right of recommending one out-patient at a time; and each 2l. 2s. gives the right of recommending one in-patient each year.—Ed. M. J.]

COATING AND PROTECTING METALLIC SURFACES.

SIR.—So many propositions have been made for compounds to protect metallic surfaces from oxidation, that one is almost inclined to look upon all coating compositions with suspicion; but that which I am about to introduce to the notice of the readers of the *Mining Journal* is, in my opinion, so entirely free from the objections usually existing, that it would probably be worthy an extended trial, more especially as the inventor—Mr. James Spence—being an engineer in the Portsmouth Dockyard, must be acknowledged to have had an opportunity of acquiring the necessary experience to enable him to ascertain what is really required to ensure efficiency. Mr. Spence's object was to prepare an improved plastic composition, which shall have the property of setting like cements, and yet possess a certain amount of elasticity sufficient to enable it, when applied as a coating to metal, to yield without cracking to the contraction and expansion of that substance under variations of temperature. A composition possessing these qualities he produces by the intimate combination of argillaceous earth, water, oil cake, fish oil, cow hair, and carbonaceous and colouring matter, with Portland, Roman, or other like quickly-setting cement. Its elasticity, coupled with its strong drying or hardening property, renders it especially suitable for protecting the internal surfaces of iron ships from the action of bilge-water, and thereby preventing rust or oxidation. It also applies to the composition for the preparation of foundations for buildings, to the formation of basement and other floors, and of pavements, and to similar uses where hardness, incombustibility, and impermeability to moisture are required. The proportions of the several ingredients may, of course, be varied, to suit varying circumstances; but, as an example, it may be stated that, to prepare a coating for the internal surfaces of iron ships, to prevent the oxidation or rust thereof, he takes of argillaceous earth (say) 1000 lbs., and mixes it thoroughly with water, to convert it into a paste. To this quantity of paste he adds the following substances, in about the proportions given:—Oil cake, 24 lbs.; fish oil, 3 gallons; cow hair, 24 lbs.; soot, 24 lbs.; bone ash, 3 lbs.; stirring, grinding, or kneading the same, so as to ensure the intimate admixture of the ingredients, and thus obtains a compound of about the consistency of plaster prepared for covering walls. To give the compound the property of quickly setting, he adds thereto from one-eighth to one-sixth of its weight of Portland, Roman, or other like quickly-setting cement. In order to apply the composition to the surfaces required to be coated, the usual means are employed. When the compound is used for foundations or pavements it can be applied either in a plastic state or in cakes.

Now, as the cost of this composition must be merely nominal, it certainly appears to have much to recommend it, for it appears to me there is all that is required to secure solidity and durability. The proposition to apply the invention to pavements reminds me of the invention of Mr. James Dickson, in combination with which it would work admirably. It is well known that, with all such materials as this, an efficient system of underdrainage is necessary, and it is only where this has been neglected that the use of asphalt has proved unsatisfactory. The invention of Mr. Dickson just provides for this. He proposes to employ a series of shallow troughs, of cast or wrought iron, and these are laid on suitable supports; these troughs are to be filled with a durable cement, and I think Mr. Spence's is precisely the cement that is required. Whether the two gentlemen can co-operate, of course, I do not know; but, under any circumstances, I would advise Mr. Spence to consider the question of underdrainage, for I am convinced that upon this alone will it depend whether he fails or succeeds.

Portsmouth, June 21.

THE CROWAN MINING DISTRICT—No. IV.

SIR.—In my last I gave a general geological description of this district, referring more particularly to that portion of the parish containing the Great Vor flookan, which induces such large deposits of ore in the lodes arranged by it. It is to the east of this flookan, as further south in the Vor and Metal Mines, that the lodes have been principally productive, although good deposits have been found to the west—at Carzise and Godolphin. Commencing with the mines to the east, and taking those most northerly—Wheat Mary and Wheat Janey—we find that these mines, so far back as the beginning of the present century, returned, the former 12,000l. and the latter 30,000l. profit; but the quantity of ore raised becoming less at a time of great depression in the copper trade caused a somewhat hasty abandonment. Some distance south is Wheat Mount lode, which, in a strike direction, and a depth little exceeding 1 mile, 40 fms., returned a profit of 50,000l. The ore shafts and burrows were here filled in and levelled, and on this spot, so busy a few years since, corn now grows, though under the soil is buried at least 15 ft. of mine debris. Nearly 150 fms. south is Kilton Croft lode, the bearing of which has been changed 25° by the heave it sustained by the flookan. Immediately to the east of which, after this remarkable heave, occurred a deposit so shallow that much of the ore was visible: 3000l. was quickly raised, and a splendid course of ore anticipated; but a hard channel of capel, of no great thickness, came in, and cut it out. This was quite enough to dishearten the then adventurers, mostly farmers, and the lode received no further trial. This lode is in the northern part of the land recently granted to the Great North Vor Company, and will, doubtless, receive at their hands a good trial, especially as an adit has been driven east on this lode for 300 fms.

LEEDSTOWN CONSOLS, now included in the grant last named, was stopped about twelve years since, having been worked for some years previous. Several thousand pounds worth of tin was sold; but, in consequence of the engine (which was an 18 and 36 in. combined) being totally inadequate to keep the mine free of water, the adventurers, rather than to the expense of erecting a larger engine, ceased working it. This is the more unaccountable, as their steam-stamps were in full work, and from two good tin lodes they were breaking fair quantities of tinstuff. This result of the last working shows the importance of carefully calculating the amount of steam-power required. In this mine, to the west of the Great flookan, there is a small one, against which is a good course of tin. This the former party were unable to take down, being fearful of such an influx of water as would disable them from taking up their materials. To the south of the two tin lodes is a copper lode, of which a high opinion is expressed by the old miners of this locality, and from whence I obtained some of the finest gossan I ever saw. I trust the company now formed will erect a good engine, at least a 60-in., and give all these lodes a proper trial, as I feel sure that at no distant date they will receive fair dividends. Returns of tin will be made directly the mine is cleared to the bottom, which I hear is 40 fms. below the Godolphin adit at this mine, 16 fms. from grass.

BUNNEN CONSOLS, adjoining the Great North Vor on the south, has been but little tried. In 1841 Capt. Gregory worked it to the 20, where the lode is over 2 ft. wide, containing blende and copper ore, of which latter 100 tons were sold. This is also under grant, and I hope the holders of the license will proceed vigorously to form a company. A little adit, and parallel with the mines I have spoken of, is another run of mines productive, in a direction also nearly agreeing with that of the Wheat Vor flookan.

NORTH BUNNEN DOWNS is an instance of disputes between large shareholders leading to a stoppage of a valuable mining property. The adventurers made a clear profit of 25,000l. This lode, which underlies north, made good courses of ore to the bottom (90 fms.), the average produce being about 14l. This lode is known to be valuable; several applications have, consequently, been made for it. The preference, however, lies between the promoters of Bunnen Downs and East Treasury, the arrangement, I believe, being that the first who has an engine is to have the grant. This may, and probably will, stimulate them to increased activity; but I strongly recommend that it be granted to a distinct company, so that it may be worked energetically. The grants of both Treasury and Bunnen Downs are large, and contain important lodes, which will require all their capital to develop them.

SOUTH BUNNEN DOWNS (now Bunnen Downs), which I examined, is now about to start, all arrangements having been completed, with a reduced royalty of 1-30th. An 80-in. engine will be put up, both to work the old lode, which is known to contain large quantities of tin, left by the former workers, and to open three south lodes, where I broke a good gossan as could be desired. In the former workings very large profits were made, 80,000l. having been divided from operations above the 40; since then the workings have been continued to the 160 fm. level.

WHEAT STRAWBERRY, which made a profit of 120,000l. on the last working, I have already noticed, and will merely mention that the Crowan Consols adventurers have determined to work it as soon as their arrangements permit. The water-to-day is several feet below what it was on my last visit, which must much of it be coming back to Ward's mine-shaft. Here, at the 30, they have cut into the Dampin lode; but have a short distance to drive before getting under the course of ore met with in the 20. I still hold to the opinion I have often expressed—that this will, if properly managed, be a good dividend property when the 40 is opened. I understand that the future workings

will be carried out on the Cost-book System. This is an important advance in the right direction, and I have no doubt it will enhance the market value of the shares. WHEAT JULIA was worked, on the stoppage of Strawberry, by the same adventurers (the Messrs. Williams). In addition to the machinery removed from the old mine, they had an 80-in. engine. A profit of 200,000l. is said by the managers to have been made here, although the maximum depth reached was only 100 fms. from surface. The mines to the west of the flookan, including Old Godolphin, I shall in a future issue report to. CROFTON, June 16. BREXTON SYMONS.

ON DRESSING METALLIC ORES.

[Notes from a Lecture by Prof. W. W. SMITH, Royal School of Mines, London.]

The dressing operations we discussed in the last lecture are most important, although, in considering the whole subject of ore dressing, they are but preliminary. We have seen how the sorting, sizing, and picking is carried on, and how some minerals require washing, others merely sizing through sieves and griddles. It will, by-the-by, under this head, be better to mention a modification of the griddle which has been introduced into Saxony, and in which the axle, instead of being inclined, is placed horizontally. In the interior of the griddle there is a worm, or screw, which, as it revolves, turns the mineral from one end to the other.

We now come to the next question of our subject—the means to be adopted for the comminution of the bulk of the ore, for we find that by far the greater portion of what comes out of the mine is in such large pieces that it requires to be reduced in size. Here arises a great difficulty, in that we have to choose between a great variety of mechanical means for the purpose. In treating the majority of the ores of copper, lead, and zinc it is not desirable to reduce the mineral to a small size, since when brought down to a state of fine division, and mixed with water, a great quantity of the richer parts are lost. Some valuable ores, such as those of silver, which require fine division, are broken by hand to prevent loss, and are sifted for the same reason, in griddles enclosed in boxes.

Now then, as regards the apparatus for comminuting ores, we have first the oldest and most simple of all—the pestle and mortar, and which we must not consider valueless from its simplicity and use in every-day life. Where we have rich ores, as auriferous quartz, we may often find the use of the pestle and mortar of great advantage. Thus, in the mines of Transylvania, after reducing the gold rock to a certain degree of fineness, the miners bruise it still further, and amalgamate it in mortars. In gold and silver yielding countries they sometimes use an iron mortar with a very thick bottom, to comminute the ores, and for convenience in emptying the mortar is supported in a frame by a couple of trunnions. It is worthy of notice that many of these old and simple machines have of late been modified and brought out under new names, and moreover, patented. The cause of this has been the discovery of gold abroad and at home, which has induced engineers, unacquainted with the history of mining operations, to take out patents for the adaptation of the old pestle and mortar and similar contrivances. One of these so-called inventions is now to be seen in North Wales, under the name of Mr. Britten's machine. It is nothing else than a vast iron mortar of conical form, having a conical pestle resting in it, hung by a loose pivot in the centre of the mortar. The pestle is set in motion by a crank attached to a water-wheel. It is a very useful little machine, but totally incapable of treating any considerable quantity of metal. Of other machines of this sort, we have one, by an American inventor, Mr. Berdan, which was stated to be a great discovery, since it performed the double duty of a triturator and amalgamator. It is a very singular method, though no new idea. The machine consists of a very large cast-iron basin, placed at an inclination, and having below it a strong toothed wheel, set in motion by adjacent machinery. The basin, which contains mercury, water, and the ore, has a number of holes around its upper part to allow the excess of water to escape. Within the basin are put two balls of cast-iron, one weighing about 1 ton, and the other about 7 cwt. As the basin revolves the balls are set in motion and triturate the mass. It certainly does, to a certain extent, triturate the ore, but it requires a greater length of time to accomplish it, and, after all, does it but imperfectly; and we may, therefore, consider it inferior to our other modes of comminuting ores. There was one curious thing about the machine, that whilst the inventor conducted the experiments the rock, whether auriferous quartz or Dartmoor granite, always yielded gold; but directly Mr. Berdan disappeared to America, with about 40,000l. of English gold in his pocket, the machine would no longer act, nor the rock yield gold.

About the same time that the preceding scheme was proposed, another man proposed to comminute auriferous rocks by loading guns with them, and firing them off against iron plates. Omitting any further notice of such absurd ideas, we will pass to those machines capable of doing their work effectively, and which are employed satisfactorily in our mines. We have, however, first to consider how the largest lumps shall be broken. When reduced by hand it is termed spalling, when by large hammers, tilting. These large hammers are not satisfactory, first, because it is difficult to keep them in constant work, and, secondly, because they beat the ore with too heavy a blow, and we may, therefore, always consider hand spalling preferable. There is working now in Wales a stone-crushing machine, invented by Mr. Blake, which is well worth mentioning, as it seems capable of getting through an enormous amount of work. It was invented for breaking up stones in mending roads, but we think it might be applied with advantage to crushing ores. We have next a large class of machines called edge-runners or arastras, almost exactly similar to the machines used in the pottery districts for grinding flints. They consist of a circular basin paved with blocks of hard stone. There is an upright axis in the middle of the basin, to which is attached cross arms, and at the ends of these are placed pieces of hard stone, such as chert. The mineral to be crushed is placed in the basin, and the stones being made to revolve by machinery applied from the central axis, the ore is crushed to powder. The objections to this mode of comminution are that it is extremely slow, and it requires great care and attention to keep the mineral under the stones. The latter difficulty is somewhat obviated by the addition of scrapers, which continually drag the ore under the stones. This sort of machine has been used in triturating auriferous quartz, but is quite inadequate where the quantity to be broken is large, as it is in Australia. A modification of the above is that of two large circular stones edged with iron, and made to revolve in a basin by the same arrangement as in the previous case. It is a serviceable form of machine for grinding down small quantities of ore to an impalpable powder. This fine grinding is, however, in the case of copper and tin ores, very objectionable, as on their reduction to such a fine state of division there is an inevitable loss in the subsequent processes. It is well in dressing all ores to remember that the particles should always be kept as large as is consistent with the separation of all impurities, and we should avoid the great fineness of particles, unless the ore is to be subsequently amalgamated.

We now come to the machine called "the crusher," common to the mining districts of England, Germany, &c. It is difficult to determine when it first came into use, but it was probably about the year 1810; for we learn that it was used at an early date in the Tavistock Mines, whence it was carried to Germany, the machine being essentially an English invention. The principle of the machine is that of two rollers put into motion in an inverse direction, and crushing the mineral between them. The rollers themselves are generally of small length, say from 1 ft. to 1 ft. 6 in., their diameter being from 24 to 30 inches. The material of which they should be made is best selected No. 3 iron; and in as much as it is desirable to remove the outer case when worn, the iron face is merely a shell. The axle of the rollers are connected by spur gearing with the crank-shaft of a steam-engine, or some other prime mover. The rollers revolve in brass bearings in a massive frame. The bearing of one of the rollers is fixed, that of the other movable, it being held in its place by a long powerful lever. The object of this arrangement is to admit of a widening between the rolls if any hard substance, such as a piece of iron, should get mixed with the ore to be crushed. Some of the crushers constructed in the North of England and the Hartz Mines consist of three pairs of rolls, commonly 3 feet in diameter. The upper pair are fluted, and the ore partially crushed in passing through them; from these it falls to a second pair, where it is further reduced, and at last passes through a still finer pair. These machines are very costly, and cannot be erected for less than 500l. to 600l. For the usual purposes, however, we can but consider the form of machine common to Cornwall and the Hartz as better than this more complicated one; and the only objection to the single pair of rolls is, that the ore must be roughly spalled by hand before it enters the machine. The only use of the third pair of rolls is where the stuff is very hard, and the surface of the second pair becomes grooved and, therefore, does not effectually perform its duty. The question now comes, shall the ore be crushed wet or dry? Sometimes we have it solved for us by the impossibility of crushing the ore dry, as in the case of hard copper ores in slimy slates. There is also another point of great importance—the speed or velocity at which the crushing shall be performed. On this head it is fully established that the rollers do their work most effectually when the cir-

cumference revolves at the rate of 30 ft. to 45 ft. per minute. Thus, rolls 24 ft. in diameter ought to make from four to five revolutions per minute. At some mines, and the Devon Great Consols is one, they prefer having the rolls of different lengths, so that when the surfaces become worn the smaller roll shall fit into the groove of the larger, and so steady the whole machine. Good crushers are capable of getting through an immense deal of work; and such a machine, with rolls of 30-in. diameter, is capable of crushing 15 tons of good-class ore per hour. When the ore is poor, and the rock harder, we may expect such a machine to get through from 5 to 6 tons per hour.

FOREIGN MINING AND METALLURGY.

The proposed line of railway from Lille to the collieries of the Pas-de-Calais has been received very favourably, and the subscription for the capital required (80,000l.), has been completely filled up. More than 60,000l. was made available by the towns of the rich departments of the Nord and the Pas-de-Calais. We referred last week to the efforts of the large-masters of the Haute-Marne to improve their canal communications, and we may now state that the foremasters have made an advance of 32,000l., without interest, to the French Government, to facilitate the early execution of the Virey and St. Dizier Canal, the Government in its turn engaging to devote to the work a sum of 25,000l. The Academy of Sciences has received a communication of a highly interesting archaeological discovery of an antique wheel, employed for the drainage of waters about 600 years after Jesus Christ. The engine has been found by a M. Deligny, and has been presented by him to the Conservatoire des Arts et Métiers. It was in the copper mines of San Domingos, in Portugal, that M. Deligny made his discovery. These mines form part of a metalliferous district, the working of which may be traced back to the most remote antiquity; and it is even stated that it was from here that the fleets of Solomon received the copper intended to be used in the ornamentation of the Temple. The importance which the ancient working of these mines attained is proved by the huge size of the scoria, the extent and mass of which appear colossal, even from a modern point of view, for they are computed to amount to not less than 20,000,000 tons. According to historical documents there are two works in the working of the mines; the one Phoenician, the other Roman. It is to this last period that the wheel just discovered is remarkable for its lightness; movement is supposed to have been given to the apparatus by means of men working with their naked feet. The wheels were, doubtless, superposed in a parallel system, the inferior one draining water into a basin of the rock, and diverting it into a wooden canal, which conducted it into the basin of a superior wheel. The San Domingos Mine has been again brought into working by M. Deligny. No trace of works subsequent to the collapse of the Roman Empire has been discovered; and the wheel just placed in the Conservatoire des Arts et Métiers may then be traced back to at least the year 412.

To come back from all this magnificent antiquity to the hard, dull realities of the present, we may observe that the situation remains rather indifferent at St. Dizier—in fact, it is described as mediocre. Pig for refining remained without any known transaction; offers are made by producers of charcoal-made pig at 4l. 12s. per ton, which was the average quotation for May. The orders received for iron have been a little better sustained, at 9l. to 9l. 4s. per ton. For machine, No. 20, some orders have been received at 9l. 8s. per ton. From the Morin group it is stated that the rise recently announced has not sensibly checked orders, should be added, however, that the advance has only been effected within a most restricted radius. Beyond this radius—at Paris, for example, and the department of the Nord—prices have not experienced any variation, the competition of the other groups rendering an advance impossible. The French Customs' authorities have hitherto failed to register publicly the imports effected under the regime of warrants, but it is stated that the Minister of Public Works has given an assurance to the committee of French foremasters that a table on the subject will in future be composed in the official returns. It appears that during April there were imported into Paris 3451 tons of iron for construction purposes, and 1837 tons of pig. As compared with the quantities entered in April, 1883, these figures show an augmentation of 1605 tons in the imports of iron, and 140 tons in the imports of pig. English pig is quoted in warehouse at Marseilles at 5l. per ton, and for consumption at 5l. 16s. per ton. We announced recently that some new metallurgical establishments were about to be formed in the portion of the department of the Moselle bordering on the province of the Luxembourg, and we spoke also of new affairs into which some Belgian industrialists entered. We read in a Charleroi journal the following lines, which come in support of our information.—It is the proximity of workings of mines which induces capitalists and foremasters to create works in this district. MM. Minard, de Fraire, and the Baron d'Adelsward are constructing blast-furnaces at Mont St. Martin; MM. Labbé and Legendre are about to establish three others in the same locality; and, finally, it is announced that the Société de la Providence is about to establish two at Rehors. It is expected that the development of industry in this district will not stop at this point, the blast-furnaces of the locality being placed in excellent condition in respect to production, for as mines scarcely cost them anything they can furnish pig at very cheap rates.

It is remarked that the demand for plates has been for some time more active at St. Dizier. England, among other customers, takes large quantities of plates for the sheathing of ships and other purposes. The rolling works producing plates are very busily occupied, and the fabrication is still extending. Rails continue also to occasion great activity, and, although the orders have not been quite so numerous during the last few weeks, works are now applying themselves to the completion of contracts concluded long since. The firmness of prices is maintained, refining pig being quoted at 3l. to 3l. 8s. per ton, according to quality; casting pig makes 3l. 14s. to 4l. 4s. per ton, Nos. 6 to 1, with a scale of 2s. per number; rolled iron is quoted at 6l. 16s. to 7l. per ton for No. 1; 7l. 8s. to 7l. 12s. per ton for No. 2; and 8l. 4s. per ton for No. 3; rails, 7l. to 7l. 4s. per ton; fine and medium plates, from 2 millimetres thickness and upwards—first quality, 10l. 4s.; second quality, ditto, 9l. 8s. per ton. An augmentation of 16s. per ton is made for thicknesses between 1/4 and 1 millimetre and 1 and 2 millimetres. It appears from the proceedings at the annual meeting of the Central Belgian Railway Company that a convention has been concluded with the Strepy-Bracquegnies Mining Company, in order to construct a branch intended to unite the collieries and mines of Bracquegnies to the St. Hubert Station. The Strepy-Bracquegnies Mining Company contributes to the construction of the branch by means of a subsidy of 40,000l. and an advance of 8000l. From the annual report of the administrative commission of the savings bank of the operative miners of Liège, it results that during the exercise 1883 the bank has still had to deplore the accidents which appear, so to speak, inevitable in the working of mines. Thus in 82 accidents reported last year in the Liège group, 48 working miners met their death, while 16 others received grave injuries. The chief catastrophe of the year occurred on July 12, in the works of the Maribay Colliery, and occasioned the deaths of eight victims. All the wounded, with one exception, were members of the bank. In 1882 the number of accidents was only 67, or 15 less than in 1883, but there were seven men killed and seven more grievously wounded than in 1883. In consequence, the average rate of mortality proportioned to the number of working miners was 0.296 per cent. In 1882, while in 1883 it was only 0.276. The charges which weigh upon the institution tend to increase every year, and the administration considers that the legal recognition of the society as a corporate body would improve its position. The payments amounted to 7182l.—pensions and grants, 7006l., and expenses of management, 4777l. A royal decree, dated June 3, approves some modifications introduced into the statutes of the Sacré-Madame Colliery Company. As regards the Belgian coal trade, there is no improvement to report, the situation of the different basins being maintained without change. In a few days the production of the various collieries will be diminished, in consequence of the approach of the harvest, and the suspension of negotiations; and it is probable that the prevailing calm will continue until next month. Menu is relatively quiet, in consequence of the increasing fabrication of agglomerates; briquettes acquire also a greater importance in the Liège basin. At Mons the arrival of some orders is noted on export account, especially from the Haute-Marne; a greater activity is hoped for on this side. The stock is not much higher than it was at the corresponding period of last year. On the whole, however, the Belgian coal trade continues in a feeble state, this state of affairs arising in great part from the excessive production of the various collieries. The extraction goes on increasing more rapidly than the consumption. External outlets are disputed, and colliery proprietors must apply themselves seriously to the creation of new ones. It is in this general direction that the efforts of this industry are tending.

With regard to the foreign metal markets, we may note that at Paris English copper has fallen 21l. per ton; on the other hand, at this market, as well as at Havre, Chilean has regained more firmness, and is sustained at 88l. to 90l. per ton. At Paris, English in plates has been quoted 98l.; ditto tough coke, 98l.; Lake superior, 122l.; Chilean, 88l. to 90l.; Corocoro mineral, 92l.; rolled red, 100l.; and yellow, 100l. At Havre, Chilean and Peruvian in bars have made 88l. to 88l. 10s. Peruvian mineral (pure standard), 98l.; United States, Baltimore, 112l. to 114l.; Lake Superior, ditto, 116l. to 120l.; Mexican and La Plata, in bars, 80l.; Russian, 108l. to 120l.; old yellow copper, 50l. to 58l.; red, ditto, 58l. to 59l.; and bronze, 72l. to 76l. per ton. On the German markets, and more particularly at Hamburg, transactions are very limited, without, however, notable variations in price. Tin is in a languishing state; the result of the approaching public sale of the article, the estimates formed do not appear very favourable. Banca has fallen this week on the Dutch market to 65 fl. At Paris, Banca has made 118l. 7/10, Detroit, 115l.; and English, 109l. per ton. At Havre, Banca has been quoted 111l. to 112l.; Detroit, 108l.; Peruvian, 88l. to 100l.; and Peruvian mineral, 96l. per ton. Lead is less sought after, but prices have been maintained, at previous rates. At Paris, Spanish saumons have brought 20l. 12s. to 20l. 16s. per ton. Zinc remains in a good position, but gives rise principally to speculative affairs. At Paris the article has slightly fallen, rough Silesian being quoted 25l. 4s.; rolled, 22l.; and Vieille Montagne, 30l. per ton. At Breslau and Hamburg the demand is active; on the latter market especially.

LIMITED LIABILITY COMPANIES.—A return just presented to the House of Lords, on the motion of Lord Overstone, states that since the Joint-Stock Companies Act of 1856 came into operation 2820 limited liability companies have been registered; 938 of them have been wound-up, or are supposed to have been discontinued, leaving 1882 still in operation. These companies proposed to make their shareholders liable for

decrease in the produce, but the chief causes of its notable decline are the reduced field of the ore, and the fact that the yield of the mine has been reduced to half an ounce per ton (caused by the ore not being so thoroughly freed from kila), and the more serious decline in the yield during the period from Feb. 13 to March 22 last, when, in consequence of the casualty in the Bahu Mine, no ore could be extracted from the most easily worked and most productive part of that mine. Very little progress has been made during the year towards converting the Cachoira into the main and only sump. The constant attention the south wall of the Cachoira Mine has required, the contraction of the lode in the Middle Cachoira, and the failure of the old wooden pumps, have rendered the more rapid sinking of the Cachoira impracticable. These and other considerations connected with the future working of the mines make it necessary that this question of the main sump should receive further deliberation on the spot at an early date, and the board have accordingly instructed Mr. Gordon to lose no time in bringing the matter before the mine conference, in order that it may receive the careful and deliberate consideration of the mining captains and most experienced miners. It will be a subject of much regret to the board if it should be found impracticable to carry out this measure. As a means of working the mines with greater economy it would be most desirable. In proportion, however, as the lode in the Cachoira contracts, and that in the Bahu expands, the difficulty of carrying it out increases. The lode in the widest part of the Bahu has now reached the extraordinary width of 100 feet. To carry into effect the proposed change, it would be necessary to sink more rapidly in the Cachoira than in the Bahu, but the facilities for sinking, in the present relative condition of the two mines, are greater in the Bahu than in the Cachoira. The difficulty of finding ore enough for the stamps, without availing of the wide part of the Bahu, increases, too, in the same proportion. It is a subject that requires the gravest consideration, and, until the result of the deliberations on the spot be communicated to the board, they are not prepared to express a decided opinion as to the practicability or expediency of ultimately carrying out the plan, but it is right that they should state here that they are not as sanguine on the subject as they were last year. Unforeseen difficulties have been encountered, and much skill, perseverance, and energy have been displayed in overcoming them.

The following is the financial position of the company—

| | | | |
|--------------------------------------------------------------------|---------|----|----|
| In England—Cash at Messrs. Barclay and Co. | £ 1,787 | 9 | 11 |
| Ditto, at London Joint Stock Bank | 10,000 | 0 | 0 |
| Bills receivable | 10,000 | 0 | 0 |
| To pay—Dividend now proposed | 27,500 | 0 | 0 |
| In Brazil—Cash at Morro Velho on March 1 | £ 4,781 | 6 | 11 |
| Ditto at Rio, at interest with the London and Brazilian Bank | 22,921 | 6 | 4 |
| To pay—Personal accounts | £ 2,776 | 6 | 6 |
| Estimated expenses of working the mines for March and April | 20,000 | 0 | 0 |
| Newcastle and Carlisle Railway Debentures | £ 4,000 | 0 | 0 |
| Three per Cent. Consols, 92 3/4, 8s. 8d., cost | 8,674 | 3 | 10 |
| Newcastle property | 14,136 | 17 | 9 |
| Great Western Railway Debentures | 3,000 | 0 | 0 |
| South Western Railway Debentures | 4,000 | 0 | 0 |
| | £38,811 | 1 | 7 |

The CHAIRMAN said, the report was of such a comprehensive character, and so fully detailed all the company's operations during the past year, that it was hardly possible indeed, it was impossible—to add to the information contained therein. It was true that it did not present so satisfactory a view of the position of the company as during the two preceding years; but, considering the fluctuation to which all mining concerns were liable, it would, he thought, not be altogether considered very disappointing, when even in an indifferent year the directors were able to announce a profit of £3,255, and after paying the half-yearly dividend, due on Dec. 25, they were in a position to propose a further dividend—though a diminished one—of 2s. 10d. per share. The cause of the falling off in the produce was fully detailed in the report, but the satisfactory part of the information which the directors were able to present was that there was nothing in the general condition of the company to warrant any doubt that it was still on a sound and solid foundation. The remarks of the head mining captain upon this point were very strong, for after having detailed the various operations, he concludes his report as follows:—

"Judging from what we have had to contend with during the past year, I think we should be satisfied with the result obtained. In the coming year, when the Cachoira stops get down to the bar, we shall have an opportunity of working on the rich run of mineral grounds which contributed so much to the large produce and profits of 1863, 1860, and 1861. This ground, with the splendid ground we have in the Bahu, even supposing the Middle Cachoira remains as it is at present without improvements, which I think very doubtful, will raise Morro Velho still higher in the opinions of all judicious investors in this sound and valuable property."

Looking through that report, and seeing the enormous extent of the lodes possessed by the company—such as few mines in the world could be reported as possessing—shareholders would not wonder at the strong expressions there employed. And Mr. Gordon, the superintendent, concluded his report as follows:—"Looking carefully at the whole circumstances of the mine as presented at the end of 1863, and reviewing the difficulties, proceedings, and operations through which we have passed, there appears to be sufficient reason to make us reconciled to what has been accomplished, and to induce us to look forward to a condition of the mine works and a period of the mine development that will be as profitable and satisfactory to the proprietors as any they have hitherto experienced. There is the mineral available on a scale the extent of which is not fully known, a good stock of every requisite material, an ample and augmenting force of labourers, and, by conserving our water power and effecting some improvements in its distribution and application, there is reason to conclude a good return can be obtained from the mine on the capital employed in fairly working it."

But since those reports were written two casualties of a very serious character had taken place in the mine—the first happily without loss of life or injury to limb, but the last, unfortunately, was attended with the melancholy result of the destruction of eight lives. Considering, however, that there were altogether 2200 persons employed, and considering, too, the liability to such casualties to which all mining undertakings were subjected, it was not, he believed, too much to say, going back for the last twenty years, that any great mine had had fewer casualties than the St. John del Rey. One comfort was that if those two casualties—on merely the falling down of a quantity of ground—were practically as unimportant occurrences, but when a loss of life occurred there was a very responsible attaching to it. It was satisfactory to know that no amount of care, precaution, or human foresight, could have prevented such an unfortunate casualty; but the first duty of all connected with the concern was to endeavour to prevent its recurrence. That there was no fault or imputation to be attached to any person in the company's service was shown, as stated in the report, "that the verdict of the inquest held by the Brazilian authorities acquitted the company's officers of all blame." After the accident a very large number of the miners left the company's service, but at the date of the last advice about two-thirds of them had returned. Of course, in the meantime, the produce had been very materially interfered with; but Mr. Gordon hoped that, by degree, the number of men would return to its former standard, and all would go on right again. In his last letter, received a few days since, Mr. Gordon made use of the following remarks:—"Unless some very unforeseen and unexpected casualty should occur in the mine, it will not be long until our plans will be restored, and the stopping resumed in the Bahu, the spalling-floors supplied with ore, and good produce obtained. I know of no reason to prevent this being the case, nor do I yet see any thing in the state of the mine calculated to discourage. All mining operations are subject to reverses and disappointments, and Morro Velho, though fortunate for the past six years, cannot be considered as exempt from such casualties. One of the first considerations of the superintendent, after the casualty, was to make provision for the families of those who had lost their lives. Mr. Gordon subscribed liberally on behalf of the company, and every one connected with the company had rendered every assistance in their power. It was only justice to their excellent superintendent to say that no occasion arose which did not call forth the display of those excellent qualities which were so beneficially employed in the company's service. There was one circumstance which should be observed with satisfaction—that they were sensibly decreasing the loss of gold in the process of extraction—the improvement was as great as it was remarkable, and comparing the produce of the gold with what it was 20 years since, after allowing for the very careful selection of the ore, it would be found very much of the same quality, and then, showing that there was an immense deposit of ore of a tolerable average richness, without occasional bunches. As to the quantity it was practically inexhaustible, and when they got over the effects of their late trouble he hoped they would again get into smooth water. Having compared the various items of expenditure during the last year with those of the preceding corresponding period, he concluded by moving the adoption and reception of the report and accounts."

Mr. LEVANCY wished for some information with regard to the bills receivable. In one account they stood at 10,000, and in another at 25,000. The MANAGING DIRECTOR explained up to the May 31st, the bills receivable were 10,000, and from the 31st to June 6, and therefore were no longer "bills receivable," but cash, which was deposited at the bankers. Those matters were all explained to the auditors when they audited the accounts. Mr. JAGO (one of the auditors) stated that the difference arose in the way stated. Mr. LEVANCY further enquired if there had yet been any produce from the new mine? The CHAIRMAN said no produce had yet been made, as the lode had not been reached. In reply to other questions, he stated that a proposal had been received for renting a part of the Newcastle property; but as that neighbourhood was considerably advanced in value, he should like to see the details of a good price. The report and accounts were received and adopted, with one dissentient.

It was resolved that the directors be authorised to raise such temporary loan on the securities of the railway debentures forming part of the reserve fund as may from time to time be necessary to meet the current expenses of the company. The CHAIRMAN stated that it had been seen that they had not a sufficient working capital. At the present time they were in want of 5000l. to pay the dividend now proposed, because there was 5000l. surplus in Brazil. A dividend of 2s. 10d. per share was then declared. Mr. BOWORTH was unanimously re-elected a director, and Messrs. JAGO and S. HENPATH were re-appointed auditors.

A vote of thanks to the Chairman and directors terminated the proceedings. [The latest reports from the Mines will be found in the Supplement to this day's Journal.]

KAPUNDA MINING COMPANY.

The fifth annual general meeting of shareholders was held at the London Tavern, on Monday. Mr. BRICE HUGH PEARSE in the chair.

Mr. J. D. KENNEDY (secretary) read the notice convening the meeting.

The report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said the present was the first annual meeting that had been held after the holding of an *ad interim* meeting, and, therefore, the proprietors had been made pretty well acquainted with the result of the mining operations of the year, even before the report of the directors was issued. He thought he might safely say that the company was once more in the ascendant position. The year 1862 was, to a certain extent, an improving one, because, although it resulted in a loss, the general results were considerably better than the preceding corresponding period. By placing against the profit and loss account the sum of 1000l., the permanent charges account had been reduced to 2000l.—that also was an improvement. It would be observed at the end of the abstract of the working account that the profit on the year's working was based upon estimated balances; he need hardly say that the balances must to a great extent be estimated, but, at the same time, he could assure the meeting that the estimates were made upon the lowest possible valuation of the stock of copper on hand. Of course, they were greatly disappointed at the present state of the market, prices being so much lower than they were a few months since. As regards the general balance-sheet, there was one item which did not often appear in their accounts. He referred to the item of 20,000l. on account of loans, which arose in this way—when the price of copper suddenly fell, the board was left with a considerable quantity on hand, which they could not or did not want to sell; and bills had been drawn against it, the loans being contracted to provide the means to pay off the bills. Besides those bills another had been paid, which was drawn upon the manager subsequent to December, 1863; so that the board, of course, felt justified in having an asset of 20,000l. against a certain quantity of copper per the *Indus*, against which that bill was drawn. As regards the colonial

cash, he might mention that although there was a very much larger balance of debt in the colony at the beginning of the year, that amount was most fully represented by the quantity of copper in the colony, and by April 26 that balance was reduced some 5000l. Having referred to the extreme regret felt by the board at the death of Mr. Routh, then whom none could possibly perform the duties of a director more efficiently or assiduously, the Chairman stated that the board had not thought it necessary to exercise their prerogative, under the Deed of Settlement, of filling up vacancies at the board between general meetings, nor did they at present recommend it, so that the directors' remuneration would be reduced. He might further mention that the manager had informed the board that in driving one of the culverts leading to the large stack chimney, and at a short distance from the smelting-furnaces, some very good ore was intersected within 6 ft. of the surface, where there seemed every prospect of having a good lode of ore. He concluded by moving the adoption of the report.

Mr. ALEXANDER seconded the proposition. Mr. WILSON considered that the results consequent upon an increased expenditure did not seem at all proportionate—in other words, they did not seem to have gained much by the outlay. The CHAIRMAN said that apparently such was the case; but in the report for 1862, the expenses had diminished from the decreased productiveness of the mine; but now, on the contrary, the expenses had increased because the productiveness had improved. The increased expenditure of the year would bear favourable comparison with the general improvement of the mine, and there were produced about 140 tons of copper in excess of the former year. Mr. C. S. BACOT mentioned that comparing the out-turn of last year with that of the year previous, the quantity of fine copper produced was 632 tons in 1863 against 478 in 1862. That increase, of course, had augmented the expenditure. Mr. DUCROS thought that a dividend of 1s. per share was small, considering the quantity of profit made. The CHAIRMAN said their enemy was the copper market. Mr. ALEXANDER need hardly say that the directors were as anxious as the shareholders could possibly be for a larger dividend, if it could be fairly declared.

The report was received and adopted. The CHAIRMAN proposed that a dividend of 1s. per share (free of income tax) should be declared. Mr. BACOT seconded the proposition, and stated that the sum of 6800l. was not so much cash at the company's bankers, but a balance on the operations of the year. It was very certain the directors could not pay a larger dividend unless the proprietors received it in bars of copper. The resolution was put and carried. Messrs. C. S. BACOT and B. H. PEARSE (the retiring directors) were re-elected; and Messrs. J. Noble and J. R. Harris were re-appointed auditors.

A vote of thanks to the Chairman and directors terminated the proceedings.

ANGLO-BRAZILIAN GOLD COMPANY.

The first ordinary general meeting of shareholders will be held at the London Tavern, on Friday next, when the report and accounts, of which the subjoined are abstracts, will be submitted:—

| | | | |
|-----------------------------------|---------|----|----|
| Dr.—Capital received | £24,985 | 0 | 0 |
| Premiums and interest | 1,657 | 1 | 2 |
| Gold dust received | 57 | 3 | 0 |
| Sundry creditors | 3,512 | 1 | 8 |
| | £30,211 | 5 | 10 |
| Cr.—Sundry debtors | £ 1,036 | 15 | 9 |
| Purchase of Passagem Estate | 16,963 | 11 | 6 |
| Material, stock, &c. | 1,237 | 11 | 2 |
| Outlay on works | 1,094 | 15 | 3 |
| Plant | 1,175 | 12 | 5 |
| Preliminary expenses | 918 | 11 | 6 |
| General expenses | 792 | 17 | 4 |
| | £23,210 | 14 | 11 |

Leaving credit balance

The directors congratulate the proprietors upon the success which has attended the establishment of the company. The company having taken possession only on Dec. 11 last, the directors would not have convened a meeting had not the Articles of Association required it. Captain Thomas Treloar's report on the property, and the information regarding the purchase, having so recently been circulated, the directors think it only necessary to draw attention to that portion of the report regarding the estimate of expenses and profits. After a further examination of the property, Capt. Treloar states that he believes the produce in the second year will be sufficient to pay the whole of the expenses, instead of only half, as originally estimated; and the directors consider that the caution exhibited by Captain Treloar, in not over-estimating the capabilities of the property, should inspire confidence. Capt. Richard Martin (the mining captain), in his report on the property, enters fully into the details regarding the various mines comprised in the company's estate, and affords information as to the work already accomplished and still remaining to be done. This report has already been referred to in the *Mining Journal*. The returns of the produce of the mines show that the amount is gradually increasing:—From Dec. 11 to end of February it was 82 ozt.; in March, 83 ozt.; and in April, 150 ozt. The whole of the capital has been subscribed for, and the premium realised upon the shares will more than cover the entire preliminary expenses of the company. A survey of the estate has been made, and a topographical and geological map is in course of completion, and by the latest advice the directors learn that every exertion is being made so that the various plans may be dispatched by the Jungo trap. Mr. Benest, second engineer to the Rio City Improvements Company, has recently visited the company's property, and speaks in the highest terms as to the future prospects of the mines, and states that the system and general organisation established reflects the highest credit on Capt. Treloar. The directors acknowledge the important services of Capt. Treloar, and the interest manifested by the various members of his staff, and also the valuable and prompt assistance afforded by their agents, Messrs. John Moore and Co., of Rio Janeiro, and Messrs. J. Bramley-Moore and Co., of Liverpool. The accounts have been audited by the Messrs. Quilter, Ball, and Co., and it will be requisite for the directors to appoint auditors for the ensuing year. Messrs. Quilter, Ball, and Co., offer themselves for re-election.

There will be a special general meeting immediately after the above, in order to exchange a clause in the articles objected to by the Stock Exchange Committee.

TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market continues very inactive; the chief business doing appears to be in the leading market mines, the whole being a speculation for the rise or fall, without any intention of holding or investing. The present unfavourable aspect of the political world is considered by some as the cause of the present depression; but experience teaches us that at this season of the year the market generally is dull.

WEST SETONS have been and continue in good request at higher rates. WHEAL SETONS have also been freely dealt in at present prices. CLIFFORDS have fluctuated, but left off firmer. NANGLES and COOK'S KITCHEN have changed hands, without any material improvement in price. TINCROFT shares are less active, but are being dealt in. STRAY PARKS have been more freely acquired for, and a few transactions at market prices have taken place. GREAT SOUTH TOLGUS and EAST CARN BREA have been freely dealt in at slightly improved rates, but left off weaker. SOUTH FRANCES are in better request, arising from a favourable decision of the Court of Error respecting the boundary disputed by the West Basset company. NORTH BASSETT had a sudden demand on Saturday last, in consequence of a telegram having been received from a person stated to hold a confidential position, but, as an official enquiry is being made, it would be unjust to prejudge the case. WEST BASSETT and WEST FRANCES have been in request at nominal figures; a few of the former have changed hands. WHEAL GRENVILLE continues firm at present prices, but are likely to have an upward movement. EAST GRENVILLE have been more in demand, and slightly advanced upon a reported improvement at the mine. EAST BASSETT are more quiet at present prices. GREAT LAKES continue to find buyers at minimum quoted figures. NORTH CROFTS have been down at lower rates. NORTH DOWNS and NORTH TREKERRY have changed hands at nominal figures. CARN CAMARON have been in request at lower rates. LAYERS and LAYERS have been in request at nominal figures. WHEAL BIST have been and are more freely offered. GREAT NORTH DOWNS have improved after the recent decline, and are likely to advance, from the present prospects of the mine. WHEAL ROSE shares still find buyers at fair market prices. EAST ROSEWAINES have receded, and are heavy at present figures. WEST CHIVERTONS have been more in request at a slight advance upon late quotations. CHIVERTONS have been down, and are rather firm. EAST LOVELLS have been flat during the week, but show a strong tendency to improve and advance. SITNEY and CARNMELLS have been acquired for at advanced rates. NEW WHEAL LOVELLS have been down at nominal prices. GREAT WHEAL YONS have receded, and are offered at lower rates. BASSETT and GREVILLE are in better request, and have improved in price. EAST CARADON and MARKE VALLEY shares have been in better request, and are likely to advance. SOUTH CARADONS are enquired for, but found scarce. GONAMENAS are in request at minimum rates. LUDCOTT and WEST CARADON are quiet at present prices. MARY ANN and TRELAUNY shares have been in fair demand at buyers' prices. HINGSTON DOWNS are sought for freely at advanced rates. CALSTOCK CONSOLS, DRAKE WALLS, and SORTHIDGE CONSOLS have changed hands at nominal figures. CHEBONS have fluctuated, but many shares have changed hands. EAST RUSSELLS are offered at lower rates.

EAST CARADON.—By the following report improvement will be observed upon that of last week.—The Caunter: The 60 east is worth 10l. per fm.; 70 east, 5l.; 80 east from 50l. to 55l.; and 90 west 5l. per fm.—New Lode: The 60 west 5l., 70 east 5l., and 80 west 5l.—South Lode: The 70 east is worth 5l., and 70 west 6l. per fathom. The usual monthly sale of ore took place on Thursday, when 502 tons (computed) realised 3184l. 12s. 6d.—MARKE VALLEY: The lode recently cut in the 100 cross-cut is producing 3 tons per fm., and looking well for improvement. The sale of 430 tons realised 1464l. 4s., at Truro, yesterday.

WHEAL CHEBON.—The most important point of operation appears to be the extension of the 95 east, to get under the ore ground going down in the 84 fm. level, where they have a lode in the bottom 6 feet wide, yielding 2 tons of copper ore per fathom, valued at 45l. per fm. The 84 fm. level end is at present disordered. No value can be placed on the 95 fm. level end, east or west, but the lode is large, and holding out much promise. The 72 east is producing occasional stones of ore, but there is a tolerable lode in the back, worth 2 tons per fathom: 120 tons of better quality ore is expected to be sampled for the two months.

CALSTOCK CONSOLS.—In shodding in the west part of the sett they have cut one of the finest gossan lodes that can possibly be seen. This lode appears to be formed by the union of several lodes, the most southern being the Okel Tor lode, and is nearly 6 feet wide, composed principally of gossan, underlying about 2 1/2 ft. in a fathom, accompanied by a beautiful soft white kila. An engine-shaft is about being sunk immediately on its course. OKEL TOR continues to look remarkably well; the lode in both stopes never presented a better appearance, and obviously improving. The winze in the bottom of the 50 is still producing large quantities of ore, and they are pushing on the 65 east to get under it. The sale for the last two months amounted to 156 tons, and as soon as the several points in operation are completed the returns of ore will be increased by 100 tons per month. WEST OKEL TOR: Operations here are likely to be attended with great success. A cross-cut is being driven to intersect the lodes, two of which are expected to be shortly cut; the more northern one, being a recent discovery, is 3 ft. wide, carrying good copper. GREAT NORTH DOWNS.—The general prospects of this mine are daily improving, and there is every reason to believe that it will ultimately become as productive and profitable as its neighbour, Wheal Rose. Too much importance cannot be placed upon the fact that the engine of Wheal Rose completely unwaters the main lode of Great North Downs to its own depth, which not only enables them to work dry, but lessens the expenditure to a very considerable amount. King's (or Boundary) shaft is down 11 fms. below the 57, the lode is 12 ft. wide, and the 4 ft. which is being carried is worth 50l. per fathom. A winze, sinking below the 57, 25 fathoms west of King's, is down about 3 fms., and the lode is worth from 25l. to 30l. per fathom. STEGGAN'S shaft is 70 fms. west of King's shaft, is down below the 57, and producing fine rocks of ore. Vivian's engine-shaft is nearly down to the 60, where there is a good lode gone down, both east and west of the shaft. This shaft is nearly 300 fms. west of King's, on the same lode, and deriving the same advantages of being drained completely dry. They have commenced clearing up South Hawk shaft, where reports state that a good lode will be found. They sampled on the 15th, 149 tons of good ore, being the produce of two months' working.

WHEAL SPARKING.—The engine-house is rapidly approaching completion, the shaft enlarged and completed to the 20, and preparations making to drive east and west on the

recently-discovered new lode, and to intersect two north lodes, the whole of which is expected to be attended with important results.

EAST CARN BREA continues to look remarkably well, and the new lode, recently intersected by the 26 cross-cut, is opening out highly productive. They are driving east and west, where the lode is yielding 4 tons of copper ore per fathom each end, and the winze sinking under the 25 is worth full 7 tons per fathom.

WHEAL KITTY (St. Agnes) is reported to have generally improved, and looking very much better, with a prospect of larger returns of tin, as well as richer work. The produce for the last month was unusually good, the tinstuff yielding 90 1/2 lbs. of tin to every ton of work. They have sold 20 tons of tin, which leaves a good profit for the month.

ST. JUST CONSOLS.—The operations are going on very satisfactorily, and the discoveries being made prove the success of the undertaking. Both Cauley's and Goldie's are looking well, and producing richer work for tin as the workings deepen.

CAPE CORNWALL.—The surface work is progressing very satisfactorily, the engine-house nearly completed, and the engineer preparing to leave in the engine. There are two lodes on which operations have been commenced, and both looking remarkably well, especially Wheal Owl lode, which is producing some good work for tin.

CARNVORTH.—The prospects here are a little more encouraging, and although there are but very few points that can be worked profitably, there are several which are being worked more productively. The engine-shaft is down 5 1/2 fms. below the 112, where the lode is apparently becoming more settled and productive. The 100, west of Frensham, which for 180 fathoms was unproductive, is yielding some good stones of tin; and the cross-cuts north and south are likely to open other lodes in each direction. The tin on the quarter amounts to nearly 500l., but the prospects for the future are decidedly better than during the previous three months.

SOUTH ST. IVES.—A company is in course of formation for the working of a piece of ground, to the south of and adjoining St. Ives Consols. Probably a more important grant cannot be found in the county unworked, nor its local position or geological character excellent. It lies south of St. Ives Consols, which mine has been constantly worked for more than 50 years, and extends upwards of 800,000, worth of tin, and still a dividend-paying mine, the cross-courses of which pass through the entire set, and the rich lodes worked on in the several mines which surround it appear to form a junction in centre of the set, and in all probability will become as productive and valuable as that of St. Ives Consols, as it possesses all the elements for a vast deposit. It is in the immediate locality or contiguous to Wheal Reeth, Rosewall Hill and Trevelyan, Trelyn, Balmoon, Providence, and other mines, which have contributed such vast quantities of tin to the metal market, and considerably assisted in maintaining the value of the county for that mineral. The property has been most favourably reported on by Capt. Charles Thomas, of Dolcoath; John Daw, of Carn Brea; J. Nancarrow, of Martin, Martin George, of St. Ives Consols; and Joseph Bryant, of St. Ives Consols. Allen, whose reports are a sufficient guarantee of the importance and merits of the mine. The prospects, in all probability, will appear next week.

NORTH GOLCH HILL, near Holywell, situated in the great run of those lead-producing mines for which the locality is so celebrated, is now working vigorously, and presenting prospects of more than ordinary character. They have a fine course of lead in the bottom of the shaft, 30 fathoms down, and they purpose sinking 15 fathoms deeper, and drive each way, which when completed will lay open a good paying mine. Large quantities of lead have been raised from the 17 to the 34 fm. levels, and the general prospects are considered highly encouraging.

EAST WHEAL LOVELL.—The opening of the eastern ground is likely to become an important addendum to the other operations. In clearing up the eastern shaft the most encouraging appearances are presented, and will shortly be at the bottom of the old workings, when great discoveries are anticipated. The diagonal shaft, sinking below the 26, is still worth from 150l. to 170l. per fathom, leaving good reserves for 20 fathoms in height, which can be taken away at a low cost. The south lode, sinking below the 20, is still worth 90l. per fathom. A new rise in the back of the 20, on the junction, is worth 150l.; this is supposed to be a new lode. There are other operations going on, which in all probability will open shortly some fine courses of tin.

NEW WHEAL LOVELL.—An improvement is reported to have taken place in the shaft 15 fathoms from surface, where a very good lode has been cut, but its value cannot be given until more fully developed.

SOUTH LOVELL.—A prospectus of this mine will, in all probability, appear this week, inviting public co-operation towards completing the list of shareholders, and thereby affording an opportunity of securing an interest in an undertaking possessing more than ordinary merit. A moiety of the 2000 shares has already been subscribed for, by those whose personal knowledge of the property, and connection with practical mining, is an obvious index of their confidence in and appreciation of the enterprise. Situated in a district not surpassed for tin by any in the county, proved by some of the richest mines ever worked, with the identical lodes traversing the list are, as features to recommend, and facts undeniable. The completion of the mine is but a question of time, and spirited and energetic measures that will be employed to effect an efficient development of the lodes, and bring the produce to an early market. The highly mineralised character of the district is being daily proved by the continual discoveries which are making in East Wheal Lovell on the north, and this week, by the important discovery made at New Wheal Lovell on the east, where they have a good lode for tin in the shaft, which is but a few fathoms deep, and close to the boundary of South Lovell; and as the number of shares remaining to be allotted is limited, an immediate application is advised and strongly recommended.

From Mr. JAMES CROFTS.—The most prominent of the depressing influences on the speculative markets is, certainly, the Danish question, which appears as far from a solution on the basis of peace as it has ever been. The record, therefore, of the actual state of things must be that they are, if at all changed, more prostrated than they were last week. Jobbing in shares excepted, the Mining Market is without animation, and must continue yet some time longer, although prices of good shares may not undergo any further fluctuations. The contingencies on the favourable side are some sudden and at present unforeseen moves by one or more of the great continental powers in the interests of peace, the conduct of England with the same object, and the drawing into the question the element of expediency, to avoid what may be called a war of attrition. Supposing this last-named contingency to take effect, there would be a sudden improvement in all the markets, and it is the safest course, therefore, for investors and speculators to be prepared for it by securing first-rate shares, at an average depression in price, and not wait for a lower point, should it arrive, which few can afford to do, as the lowest point is undefined, whilst a depreciation as a comparative question is always appreciable. Thus, for instance, if DEVON CONSOLS, from 570l. per share, were to drop to 550l., it would be a more prudent course to buy them than to wait for a further fall, which might never come, and a similar argument would apply to all other dividend shares, of which there are numbers to operate on. The Dividend List of the Journal consists of 64 mines, of which 52 paid dividends in 1864, the remainder in 1863. They were DRAKE WALLS, GREAT FORTUNE, PAR CONSOLS, POLBERRY, POLBERRY (the last two little known dealt in here), ROSEWALL HILL, SOUTH TOLGUS, SOUTH FRANCES, WHEAL GRENVILLE, WHEAL BIST, MARY ANN, and TRELAUNY. If this list of 1864 dividends should be the eyes of competent persons, it would be very desirable to know when dividends in the mine are likely to be resumed. The writer regrets his inability to answer the question himself, and, therefore, invites attention to it as one possessing great interest, not only to shareholders in the said mines, but the public generally.

Under the circumstances of the market, the broker who should be most appreciated is anyone who, having no interest as a holder of shares in mines generally, is in a position to advise, free from any bias, which are the most eligible, to be bought for investment or speculation? The task of choosing even a brief list of this nature is by no means an easy one, the necessary knowledge of the market, and the way in which many mines are being acquired, only by long experience, which alone can ensure a reliable selection. The manipulation of the affairs of a mine requires a combination of talent to successfully conduct its workings and finance, and offers very much in the proportion they obtain in the course of time of dividend-paying mines, none being what may be distinguished as "lucky" than others in this respect; but in relation to the "unlucky" it would be a mere absurdity to suppose that every effort has been made to secure a prize or two, and the writer by no means joins in the abandonment evinced in some quarters to decry such managements. What he thinks, and should be done in justice not only to the office, but the shareholders, would appear to be as far off as success as they were, shall it be said, 15 years ago? The want of such a thing, an instance of which came before the writer within the last 12 hours, lays the office open to the charge of keeping on the mines for the sake of the emoluments or salaries; but with what truth such an opinion is stated is difficult to prove; and, at any rate, the solution of the question, and the onus of carrying it out, rests with the adventurers, not with managements. If adventurers are negligent of affairs which deeply concern them, what can be expected of the employees? No individual in the enjoyment of emoluments, fairly earned, is likely—such is human nature—to voluntarily relinquish the market are very scanty, and its tendency is to drop to a lower standard of prices, unless more favourable symptoms on the war question suddenly develop themselves. The only mine which advanced on Wednesday was GREAT YON, 10s. The decline on others is thus recorded:—"Stray Park, 3l.; Clifford, 20s.; Margaret, 20s.; Chiverton, 10s.; East Lovell, 10s.; East Russell, 5l.; Great South Tolgus, 5s.; North Basset, 10l.; East Carn Brea, 5s." But it should be noted that the 23d was a day of similar rumours, as since proved, of the quality of canards, circulated probably for jobbing purposes. Report again states that on the Stock Exchange, a moderate business was done in Chiverton at 10 1/2 to 10 3/4; East Caradon, 20 1/2; East Carn Brea, 7 1/2 to 7 3/4; Great Lacey, 14 1/2; South Frances, 50 to 51 1/2; Trevelyan, 17 1/2 to 18. Of current shares the writer thinks the following safe to buy at present, or further reduced prices, the case may be:—WHEAL GRENVILLE, EAST LOVELL, WHEAL CHEBON, WHEAL ROSE, GREAT LAKES, EAST CHIVERTON, MARKE VALLEY, EAST RUSSELL, WHEAL KITTY (Leid), CHIVERTON MOOR (a very large capital in hand), NORTH CHIVERTON, TINCROFT, CENTRAL MINERA, BEDOL-VAU, CEFN CLIKEN, NANGLES, EAST ROSEWAINES, PROVIDENCE, ST. IVES CONSOLS (recently improved). A ramble amongst the large dividend stocks shows abundant choice for investors—e.g. ST. JOHN DEL REY, DEVON CONSOLS, SETON, WHEAL BASSETT, MINERA (producing 60 tons of lead per month), and DOLOCOATH, are amongst the notabilities which sell themselves.

Allusion was made by the writer last week to a new tin mine about to be introduced to the public, the prospectus of which will be in course of distribution in a few days whilst the same, and also a geological plan of the district, will appear in the Journal of next week. The SOUTH ST. IVES TIN AND COPPER MINING COMPANY, reported upon by a number of agents, amongst whom are—Mr. Charles Thomas, of Dolcoath; Nancarrow, and Capt. J. Vivian, of Great Wheal Fortune, it may be assumed will be a guaranty of its claim to be placed on the list of sound mining in Cornwall. The also, it is stated, is supported by many highly influential and, must, according mine is situated on the immediate south of the St. Ives Consols, and, according to the report, carry with it some of the prestige of its celebrated neighbour. The terms on which it is offered to the public will include a reserved capital of 2000l., a contingent one of ample amount to fully develop the property; whilst after the payment of 15s. per share in deposit and an allotment, no further subscription will be a requisite for six months, it being assumed that active and skilful operators will in a short time be so far successful as to show that the promoters have been fortunate in securing a property wherein the results can scarcely be otherwise than satisfactory to all concerned.

From Mr. EDWARD COOKE.—I need scarcely say that the Mining Market has been very dull during the week, owing to the unsettled state of political matters, which entirely discourages the public from entering into new prudent investments for the moment. While this state of things continues it may be prudent to abstain from the market until the political horizon becomes more clear. I fear, however, that holders of stock, impelled by the prospect of war, rush in, and that a great sale of shares will be the result. It is a great pity that the market may have sold prices will have again considerably advanced. The worst results of the termination of the "Consolidators" has been in a great measure anticipated. I would, therefore, suggest to the Good dividend Journal the propriety of not allowing themselves to be unduly alarmed; therefore, if and progressive mine shares will be most eagerly sought after hereafter, by more, as say hold on this kind of stock, and in the event of any serious decline, buy more, as there will certainly be a great rebound in prices, when large quantities of money will be made by those who use a proper discretion in buying. It should be borne in mind that the writer the Crimean war mining property maintained its market value, and the market was

ditto, 71. per fm.; No. 4 ditto, 51. per fm.; No. 5 ditto, 121. per fm. In the 110 east the lode is worth 61. per fm.; the lode in back is worth 41. per fm. In the 110 west the lode is worth 61. per fm. No. 1 lode in back is poor; No. 2 ditto is worth 71. per fm. In the 100 east the lode is worth 31. per fm.; the lode in back is worth 51. per fm. In the 100 west the lode is worth 31. per fm.; the lode in back is worth 51. per fm. No other change during the week.

WHEAL NOBIS.—J. Andrews, June 18: Carter's shaftmen are making fair progress in sinking and cutting trip-plate below the 45 ft. level. The No. 4 lode in the 45 end, driving east of Carter's shaft, is 18 inches wide, producing saving work for tin. The No. 4 lode, in the 35 end, east of the above shaft, is 3 ft. wide, and contains a little tin, but not enough to value. The No. 5 lode, in the 35 end, east of Carter's shaft, is 2 ft. wide, producing low quality stamping work. The 35 cross-cut north is now in good course of working; we have secured the ran, and have driven about 5 ft. in the past week. In the 35 cross-cut south there is no change since last report.

WHEAL PAIR.—J. Beard, June 22: The 10, east of Water's shaft, on Jenkins' lode, is worth 71. per fm. The 10, west of cross-cut, on Jenkins' lode, is worth 51. per fm. The 10, east of Water's shaft, on Water's lode, is worth 31. per fm. The lode in bottom of Hasleigh's shaft produces good stones of tin; ground unchanged, as hard for sinking. The stops are producing their usual quantities of tinstuff. The carpenters and smiths are busily employed putting up the stamps.

WHEAL PROSPER.—S. Mitchell, June 22: The cross-cut towards Trevaunus lode is progressing satisfactorily, and the ground very congenial for copper. There is no other change to notice since my last report. The engines and pitwork are in good condition, and working well.

WHEAL SIDNEY.—Wm. Edwards, June 22: There is no change of importance to notice in this mine since last reported. We are getting on satisfactorily with our stamping, &c., for our next batch of tin.

WHEAL SPARNON.—W. Tregey, E. Chegwain, June 18: The engine-shaft has been enlarged as far down as the back of the 20. A plat and road around shaft have been set out, in order that we may drive east and west on the new lode at this level, and drive the cross-cut north to intersect the two lodes, from 10 to 15 fms. north of Sparnon old lode; as soon as the cross-cut has been cleared as far as the Sparnon lode it will be set to drive. The adit eastward has been enlarged as far as for the present required; we shall now set about repairing the launders there. The engine-house is up the height of the lode end, and good progress is being made towards its completion.

WHEAL TREMAYNE.—R. Williams, June 22: At the new engine-shaft, sinking under the 141 shaft, the shaftmen are still engaged stripping down the north part of the lode, which is 10 in. wide, yielding low price tinstuff, with a favourable appearance for improvement shortly. In the 143 west the lode is still split up, worth 51. per fm., with a kindly appearance. In the same level east the lode is 8 in. wide, yielding occasional stones of tinstuff. We are cross-cutting north in the same level, in search of more lode, but have not yet intersected anything worthy of notice. In the 133 east Allen's branch is yielding good spots of tin in places, and looks likely to improve shortly. The winze sinking under the same level, on Allen's branch, is yielding low-price tinstuff. In the 123 east Allen's branch is disordered by floors of spar, yielding low-price tinstuff. The stops in bottom of the same level east, on Allen's branch, are worth 51. per fm. In the 113 cross-cut, east of shaft, south towards the engine lode, there is no change to notice. The stops in back and bottom of the same level, east of shaft, on Allen's branches, are worth on an average 121. per fm. In the 103 east Allen's branch is worth 51. per fm. The stops in back of the same level, on Allen's branches, are worth on an average 71. per fm. In the 123 cross-cut, south of old engine-shaft, towards the south branches, there is no change to notice.

YARNER.—R. Barkell, June 22: The 40 east, on north lode, is extended about 8 ft., and the lode increasing in size; the composition is capel, spar, munde, peach, and ore, but not enough of the latter to value. According to the dip of the ore in the 30, we shall have to drive from 2 to 3 fathoms further before we can expect much ore. The branch in the 30 slope, east of shaft, on north lode, has not been taken down during the week; when last taken down it was looking well, averaging about 14 in. wide, composed of ore and peach. The stop in the 40, west of shaft, continues to yield 3 tons per fathom, and the one in the 50 west fully 2 tons per fm. We have no north or south wall here as yet.

WHEAL UNITY CONSOLS.—Wm. H. Reynolds, June 21: The lode in the 60 west contains some good ore, and looks very promising. There is no lode cut in the cross-cut south at this level, but there are still branches with copper ore in them, and a quantity of water flowing from the end. In the 40, west of cross-course, the lode looks very promising, and are approaching its intersection by the elvan, which is an important point; a few fathoms before this end we have opened on the lode at surface, where it contains good work for tin.

MINING NOTABILIA.

(EXTRACTS FROM OUR CORRESPONDENCE.)

WHEAL METAL.—The 162, west of Metal shaft, has much improved. The 147, east of Ivey's, continues as good as ever. The general prospects of the mine are exceedingly good.

FURZE HILL WOOD.—Amongst the sales of tin ores reported this week may be noticed one from this mine; and it will be interesting to the proprietors to know that the amount—3101. 16s. 6d.—is the result of 10 weeks only. The mine is opening up well.

GOLD IN WALES.—CASTELL CARN DOCHAN returns 3 ozs. 12½ dwts. of gold, from washing about 15 cwt. of quartz, for the week ending the 18th inst. Six Brittons machines will be at work this week, when the returns will be larger. A 50-ft. water-wheel and 16 heads of stamps are ordered of Messrs. Thorneville and Warham, of Burton-on-Trent.

SOUTH CARADON WHEAL HOOPER, which has been worked in a fair and honest manner, is now showing some signs of rewarding those shareholders who have been patiently waiting for results. The ground in the 50 cross-cut south has much improved. The water is in for in the 90, and the plat in the 64 finished. They are driving on the new lode, and any day a discovery may be expected.

POLKINGHORE MOOR.—This property is showing that perseverance meets with reward at last. Peter Clymo, who is one of the largest shareholders, is generally fortunate in his mines, and now the lode in the 30 shows that the prospects are really good. The granite on the side of the lode westward is much easier for driving eastward. In the 20 west the lode continues to improve, and when the east and west lodes are intersected in the 20, west of shaft, the mine will become better known. It is said that 50 shares is the smallest number held by one person, and that Messrs. Clymo, West, Treffy, and Polkinghore are the chief holders—names well known in Cornwall, and a guarantee that the undertaking is a sound one. The tin already sold proves that it is of a rich kind, and if the lodes in the 30, beyond the shaft and 20 west, turn out well, then the mine will be safe as a dividend-paying property.

GREAT NORTH DOWNS bids fair to equal its neighbour, Wheal Rose. The lodes of Wheal Rose go right through Great North Downs, and it is proved beyond doubt that the deeper they sink the more valuable the lodes become. On June 1 the lode at River shaft was worth 301. per fm., but on June 11 it was worth 451. per fm., and improving as we sink. The largest shareholder in Wheal Rose holds a large number in Great North Downs, which looks well.

ROBOROUGH DOWN TIN AND COPPER MINE.—On Wednesday the new 50-horse power steam-engine was set to work at this mine. There was a large number present to participate in and witness the event, which was regarded with great interest in the neighbourhood. Messrs. Burton, J. S. Chenhall, and Whitfield represented the directors, and amongst others present were Mr. W. Chenhall, secretary; Captain Stephen Paul and Capt. Paul, Jun., Capt. Foot, of Old Tamar Mines; Captain Richards, of Colchator; Mr. John Pease, of Tavistock, the mine surgeon; Dr. Hamilton, R.N.; Captain James Metherell, Capt. Jackson, of Stridgate; Lieut. Perry, Tavistock Volunteer; Capt. Snell, of Wheal Concord; and Messrs. T. Nicholls, Wm. Matthews, Jun., Evans Cammings, Greenfield, W. B. Harvey (of Plymouth), Joseph Matthews, W. Cox, Josiah Sims, engineer, of Tavistock; Henry Nicholls, Joseph Matthews, Sampson, Henry Nicholls, Jun., Cornelius, of Plymouth; Jackson, of Tavistock; Treleven, of Okehampton; Warner, Tamar Smelting Works; James Chenhall, of Plymouth; Skewes, Beaton; Bawden, Tamar Smelting Works; James Robins, of Beer. After the toast, "Prosperity to Roborough Mine," Mr. Chenhall stated that he believed that in the Roborough Mine they had one which would be known as a mine when he was dead and gone. The appearances were at present very glowing. It gave evidence of being likely to be one of the greatest tin mines discovered in the county of Devon. It had been named, from its rich appearance, by some gentlemen the Devonshire Wheal Vor, and he thought if their lodes went down it would bear out the name, and the results would be equally as great.

EAST ROSEWARNE.—This mine is improving, and the shares are in very great demand. King's shaft is now worth 351. per fm., and has every appearance of getting still more valuable. The 75 west is worth 161. per fm., and looks very promising for further improvement. They will sample 150 tons of good quality ore on Tuesday next, which will leave a profit of from 4001. to 5001. on the sampling.

WHEAL UNY.—This mine is generally considered to be one of the safest speculations going. There are only 4996 shares in the mine; so that, at the present price of the shares, the whole mine is selling for a little over 24,0001. A celebrated inspector writes—"That when Uny is more developed it will be one of the greatest tin mines in Cornwall." The sales of tin and copper amount to above 50001. quarterly, excepting the last quarter, when a delay of six weeks out of the thirteen took place, on account of the erection of new engine and putting in new pitwork. Above 10001. was charged in the last accounts, which was not clear in future, as the engine, engine-house, pitwork, &c., were charged for; and this, added to the small sampling, costed by the delay above mentioned, has been taken advantage of by the "bears" to depress the shares. The mine is looking remarkably well, and the samplings for the ensuing quarter are estimated to be 70 tons of tin, at 601. per ton, besides the usual quantity of copper.

OKEL TOR.—The Duchy officer, after an inspection of this mine, a few days since, remarked that he had just seen a magnificent mine—that there was a fine course of ore in the 50 for a considerable length, with a great change in the character of the ground, indicative of large and continuous deposits of ore. That the ore is holding down is proved by sinking the winze below the 50, in which to a depth of 7 fms.—the present bottom—the yield has been 9 tons of ore per fathom; and in the 55 end, 17 fathoms behind, the lode is yielding 2½ tons of copper ore per fathom. The 50 end is producing copper ore, not only in depth, but above the 50 the backs are yielding 10 tons of copper ore per fathom. When a communication is effected with the 50 and 65, it is fairly calculated that 100 tons per month more can be readily sampled, if, indeed, the present quantity—166 tons per month—cannot be doubled, giving a profit on the whole of the workings. The profits will be evidently increasing, and when the winze is through there can be no question that Okel Tor will enter the Dividend List. When the 80 is developed—that being the deepest level in the district—Okel Tor will be the pioneer mine of the eastern part of Cornwall. The great success of the above mine has induced the formation of an influential company for the development of West Okel Tor—a property similar in every respect to Okel Tor. The committee and a staff of officials have already been appointed; and the mine, which is under the Cost-book system, is divided into 12,000 shares of 10s. per share.

PRINCE ARTHUR CONSOLS.—On Monday the starting of some new and heavy machinery at this mine, about half a dozen miles from Tavistock, was made the occasion for great rejoicing. The mine was originally called Wheal Betsy, and was formerly worked by the Messrs. Taylor for a great number of years, and stopped about 20 years ago, owing to the breaking of some of the machinery, and the then low prices of lead ore. During its former working it returned upwards of 190,0001. of silver and lead ore, having been in work for about 30 years. The ore was then smelted and refined on the mine. It was worked to the depth of 190 fathoms under the adit level. The mine has now been set to work by an influential company formed at Glasgow, with a capital of 20,0001., and the present surface works were commenced in January, since which the large wheel has been erected, wheel-pits and bobbies have been completed, and capstan and shears erected at Matthews's shaft, with a line of flat-roads 190 fathoms from the great wheel. This wheel, named the Victoria, is 60 ft. in diameter and 5½ ft. breast, and 50-horse power. Another wheel of the same size is to be erected immediately for pumping, and two powerful wheels for drawing and crushing. A steam-capstan will also be erected at once, to give the mine an efficient working, and it is con-

cently expected that when the mine is in full large and profitable returns of lead ore will be made. There is also in connection with the company a large copper set, formerly known and worked as North Wheal Friendship, in which highly promising copper lodes are known to exist. These lodes are parallel to those which have been so productive in the celebrated mine adjoining—Old Wheal Friendship—which has paid upwards of 100,0001. profit, and in which a most important discovery has recently been made, adding immensely to the value of the property. The water-wheel and machinery having been formally started, the company set down to an excellent dinner, which was followed by the usual loyal and other toasts, "Prince Arthur Consols," "The Working Miners," &c., being among the number.

PENNANT SLATE COMPANY (Limited).—This quarry is commencing most successfully, and is opened by tunnels 30 yards in the prime vein of slate. It is not a matter of opinion, but of fact, that the estate produces slate of the best quality, and in sufficient quantity to last many centuries. The men work by three shifts night and day, leaving no doubt that the whole will speedily be in full work. The directors advertise the allotment of shares to take place on July 11.

HINGTON DOWN is still looking well, and is fully expected shortly to become a great mine. Economy in working cost, and a good standard, cannot fail to make it a dividend mine.

CLIFFERS' ADIT MINE is to be worked with some spirit. Capt. H. Skewes is appointed manager, with a good local committee—men of good business habits and mining knowledge combined. With so many lodes, and all productive ones, this mine must become of more than local interest before long, while its reports will be the quantity of tin and copper that will be returned. Proper power is to be erected for pumping and hauling.

DEVON COPPER.—This mine has been specially inspected by Captain Pope and Capt. Charles Thomas, and nothing can be more satisfactory than the strong opinions expressed by these high authorities in favour of the undertaking. The mine has improved, even since the inspections, and the lode in the shaft, which has been more or less ore from surface downwards, is steadily improving. The small part of this great lode, which is being carried in the shaft, now contains a leader, said to be returning some saving work, though quite in its infancy. This mine, as was originally anticipated, seems likely to prove an early success.

SPELTER.

The views of different operators in this article being greatly at variance, we give the following report, as representing the views of operators for a rise. It would seem that the large increase of stock in this country, owing to the fears of a blockade of the German ports, has misled many as to the real position of the trade:—

The rapid increase of the stock of spelter in London, from 5500 tons on Dec. 31, to 12,000 tons on March 31, was regarded by many as a very unfavourable feature, and the reports of brokers, in private circulars and newspapers, made continual reference to the "prodigious stocks" on hand, the price of 201. 10s. to 211. current in April being considered much too high. Since that time stocks in this country have remained comparatively stationary, having slightly increased in London, but declined to the extent of nearly 1000 tons at the outports; yet the price has steadily advanced to 241. to 241½. This advance has been attributed by brokers to speculative forcing up of prices in this country, a view, however, which is quite incorrect. The large buyers in the beginning of the year have made no purchases above 221., and have lately been freely meeting the demand. It is notorious that the recent advance in price has been led by the Continent, which was entirely denuded of stock by the shipments to meet the London buying, the fear of blockade inducing continental holders to dispose of every available ton.

The *Mining Journal* of the 18th inst. states that at Breslau stock of spelter was entirely wanting, while the disposable stock at Hamburg is now given as low as 250 tons. The price, f.o.b. at Hamburg, is about 241.; so that even with the considerable advance which has taken place here spelter cannot be imported without loss. The same number of the *Journal* states that at Paris the price of Silesian spelter is 251. 4s., while rolled zinc is as high as 301. per ton. Instead of the idea sought to be conveyed by the remarks on the prodigious stocks in London, it is now apparent to those who are not wilfully blind that the consumption of this article has, after six years of low prices, again overtaken supply; and, in addition to the natural growth of demand, we have the fact of the falling off in the output of zinc ore in Silesia of 18 per cent. in the year 1863, and a consequent decline in the make of spelter in 1863 and 1864, while the quantity rolled into sheets for consumption in Germany increased in 1863 by 3000 tons over the preceding year. Concurrently with this state of matters, the French rollers have been thrown more upon Silesian spelter, their supplies of Rhenish being, it appears, insufficient. Hence it now appears that the diminished make of Silesian this year will be absorbed almost entirely by the continental demand, leaving very little for this country, which imported last year fully 25,000 tons, without adding to stock.

In proof of the statement that demand has overtaken supply, we give a comparative return of the stocks at the end of 1862 and at the present time. It is obviously a matter of little moment whether the stock is lying in London or at a few days distance, in Hamburg or Breslau:—

| | | End of 1862. | | June, 1864. | |
|--------------------------------------------|-----------|--------------|-------|-------------|-------|
| Stock in London |Tons | 5,600 | ..... | 12,400 | ..... |
| "Hull, Glasgow, &c., Liverpool and Glasgow | ..... | 4,000 | ..... | 2,500 | ..... |
| "Hamburg | ..... | 5,000 | ..... | 5,000 | ..... |
| "Breslau, Stettin, &c. | ..... | 10,000 | ..... | 10,000 | ..... |
| "Havre and New York | ..... | 1,500 | ..... | 500 | ..... |
| Total |Tons | 26,100 | ..... | 15,400 | ..... |

showing a decline of about 40 per cent., while consumption is going on actively, and production, as before stated, declining.

In addition to the above decline of stock, a fair quantity of English spelter, which had accumulated during the low prices, has been entirely disposed of within the last few months. In spite, therefore, of the apparently adverse feature of a considerable accumulation of stock in London, we find that the position of the trade is not only perfectly sound, but such as to render a further considerable advance necessary to check demand or stimulate production. It must not be forgotten that in 1853 the stock in London was over 13,000 tons, with fair stocks on the Continent, yet the price rose in that year to 251., and in 1857 to an average of 301. 10s. throughout the year, the stocks by that time being entirely worked off.

As the trade is now about 50 per cent. greater than in 1853, it does not appear that 12,000 tons in London, with no reserves whatever on the Continent, is too large a supply; but, on the contrary, we may expect the absorption of stock will be much more rapid now than then. It is worthy of remark that purchases have recently been made in this country for shipment to France; and although the shipments to distant markets have lately been small, this circumstance will only have the effect of bringing these markets into a sounder condition. Consumers are now free purchasers, some of them even buying for forward delivery.

THE TIN TRADE.—From Rotterdam, under date June 21, Mr. L. T. Van Houten writes:—"To-day the Trading Company fixed the exact quantity of Banca tin which will be offered in the sale on the 29th inst. at 146,921 slabs. The article remains in a very quiet position, there being sellers at 64 1/2. Subjoined I give a statement of the exports of Banca tin from Holland during the last three years, which may, perhaps, be of some interest to the readers of the *Journal*:—

| | | RETURNS OF THE BOARD OF TRADE. | | |
|-------------------|------------|--------------------------------|---------|---------|
| Exported to— | | 1863. | 1862. | 1861. |
| Hanover |Slabs | 4,449 | 4,366 | 4,180 |
| Bremen | ..... | 28 | 21 | 20 |
| Hamburg | ..... | 4,753 | 8,456 | 10,134 |
| Denmark | ..... | 310 | 270 | 271 |
| Germany | ..... | 47,865 | 60,849 | 50,917 |
| Russia | ..... | 5,180 | 1,849 | 10,375 |
| Sweden | ..... | 280 | 280 | 216 |
| Belgium | ..... | 7,531 | 7,543 | 5,139 |
| Great Britain | ..... | 20,919 | 37,543 | 17,404 |
| France | ..... | 24,350 | 37,203 | 47,293 |
| Gibraltar | ..... | 52 | 50 | — |
| Italy | ..... | 828 | 889 | 1,741 |
| Austria | ..... | 364 | 268 | 1,175 |
| Java | ..... | 213 | 137 | 61 |
| United States | ..... | 1,108 | 9,960 | 7,163 |
| Curacao | ..... | 3 | — | — |
| Siam | ..... | 98 | — | — |
| China | ..... | — | 585 | — |
| Japan | ..... | — | 78 | — |
| Various countries | ..... | — | — | 40 |
| Total |Slabs | 118,521 | 170,243 | 150,218 |

STEEL-MAKING IN DEVONSHIRE.—Possession of the well-known works heretofore so successfully carried on by Messrs. Gill and Co., has now been formally taken by the Tavistock Ironworks and Steel Ordnance Company, to the formation of which allusion has already been made. It is intended, in addition to the development of the existing business, to at once make preparations for the manufacture of steel on a large scale. From an advertisement in another column it will be seen that Mr. Charles Gill retains the management, so that the company are prepared to guarantee the quality of all articles supplied to be equal to that which has secured Messrs. Gill their extensive reputation.

* With this week's *Journal* a SUPPLEMENTAL SHEET is published, which contains a Plan of the Lovell Mining District; Mining in Australia—our Correspondent's Letter, and other details; Gold Mining in Victoria—No. II.; on Steam-Boiler Explosions; Reports from St. John del Rey, and other Foreign Mining Companies.

The Mining Market; Prices of Metals, Ores, &c.

| | | METAL MARKET—LONDON, JUNE 24, 1864. | |
|----------------------------|-------------|-------------------------------------|-----------------|
| | | COPPER. | £ s. d. £ s. d. |
| Best selected |p. ton | 95 | 0 0 0 0 |
| Tough cake | ..... | 92 | 0 0 0 0 |
| Tin | ..... | 91 | 0 0 0 0 |
| Burma | ..... | 98 | 0 0 0 0 |
| Copper wire |p. lb. | 0 | 1 0 0 0 |
| ditto tubes | ..... | 0 | 1 0 0 0 |
| Sheeting & bolts |p. ton | 98 | 0 0 100 0 |
| Bottoms | ..... | 105 | 0 0 0 0 |
| Old (Exchange) | ..... | 85 | 0 0 0 0 |
| | | IRON. | Per Ton. |
| Best Welsh, in London | ..... | 7 | 15 0 0 0 |
| ditto, to arrive | ..... | 7 | 15 0 0 0 |
| Nail rods | ..... | 9 | 10 0 0 0 |
| " Stafford, in London | ..... | 10 | 0 10 10 0 |
| Bars | ..... | 9 | 15 0 0 0 |
| Hoops | ..... | 10 | 15 0 11 10 0 |
| Sheet, single | ..... | 11 | 15 0 12 10 0 |
| Fig. No. 1, in Wales | ..... | 4 | 10 0 0 0 |
| Refined metal, ditto | ..... | 0 | 0 5 0 0 |
| Bars, common, ditto | ..... | 7 | 5 0 0 0 |
| Do. merch., Tyne or Tees | ..... | 8 | 5 0 8 10 0 |
| Ditto, railway, in Wales | ..... | 7 | 5 0 7 10 0 |
| Ditto, Swed., in London | ..... | 12 | 5 0 0 0 |
| To arrive | ..... | 12 | 5 0 0 0 |
| Fig. No. 1, in Clyde | ..... | 2 | 16 6 3 1 0 |
| Ditto, f.o.b. Tyne or Tees | ..... | 2 | 16 0 2 18 0 |
| Ditto, forge, f.o.b. ditto | ..... | 2 | 15 0 0 0 |
| Railway chains | ..... | 5 | 10 0 5 15 0 |
| " spikes | ..... | 11 | 0 12 0 0 |
| | | LEAD. | |
| English Pig, ordry, soft | ..... | 21 | 5 0 21 15 0 |
| Ditto (WB) | ..... | 22 | 15 0 0 0 |
| Ditto sheet | ..... | 22 | 0 0 0 0 |
| Ditto lead | ..... | 22 | 0 0 0 0 |
| Ditto white | ..... | 26 | 0 27 0 0 |
| Ditto patent shot | ..... | 24 | 0 0 0 0 |
| Spanish | ..... | 20 | 10 20 15 0 |

* At the works, 1s. to 1s. 6d. per box less.

REMARKS.—The Metal Market still remains in a state of quiescence, the present very unsettled aspect of political matters acting very prejudicially upon it. It is much to be regretted that the Conference on Danish affairs should have come to a termination without any satisfactory result; and the announcement that hostilities will be resumed on Sunday next is calculated to act unfavourably upon commercial affairs; and in addition to this, the expectation that this country will, after all, be compelled to take active measures in support of Denmark, is casting a gloom over trade generally; for, notwithstanding that the sympathy with Denmark in this country is almost universal, yet the general disinclination to war, and the knowledge that, under the most favourable auspices, great injury must occur to the commerce of the country, while those reforms and reductions, so much desired, must be abandoned for the time, causes a declaration of war to be regarded very seriously, and its avoidance, if possible, to be most earnestly desired. Under these uncertainties, the metal trade cannot be expected to be very flourishing, and we must wait awhile before we can hope to record any change for the better.

COPPER.—The market remains very quiet, and but few transactions have taken place. Buyers are still able to operate at the same terms as mentioned in our last report, and under the present state of political matters, no improvement can be looked for at present.

IRON.—In Staffordshire the demand for manufactured iron remains quiet, except for shipbuilding-plates, for which there are a good number of orders. Iron is being sent out to the North American States, which it will not reach before July 1, when the 60 days' increased tariff terminates. It is, however, thought that there will be no abatement of the demand from that quarter, especially as in the summer months the heat there is too great for the puddlers to work. Swedish iron still remains quiet. In Scotch pig-iron the market has been heavy during the week, and prices have gradually declined. At the commencement of the week prices varied from 56s. 4½d. to 56s. 9d. cash, and 57s. 6d. to 57s. 10½d. three months, and a fair business was done at these various prices. The following day the market fell to 56s. 3d. cash, and 57s. 6d. three months, but afterwards slightly improved to 56s. 6d. cash, and 57s. 7½d. three months, at which extensive transactions took place. The last advices from Glasgow state that the market has been quieter, and prices lower, while the market has been somewhat irregular. Early a fair business was transacted at 56s. 6d. cash, and 57s. 7½d. three months, but the demand exceeding the supply on late 'Change, prices advanced before close to 56s. 9d. cash, and 58s. three months, at which, however, sellers remained.

LEAD.—The market is quiet, with prices at 211. 5s. to 211. 10s. for common English pigs, 211. 15s. for LB, and 221. 15s. for WB.

TIN.—Transactions in this metal continue very limited. English can still be bought under fixed rates. Straits may still be quoted at 104½, but a parcel of 300 slabs has been sold at 105½, prompt two months. The annual sale of Banca will take place, as previously announced, at Rotterdam on the 29th inst., and it is fully expected that the price realised will be much lower than it has been for some years past.

SPELTER.—Some small sales have been effected at 241. on the spot, but business in this metal is very limited, and, in the present state of political affairs, it is almost impossible to say how it may be affected.

STEEL is without animation.

TIN-PLATES are very quiet, and sales moderate.

QUICKSILVER is still without alteration.

NEW YORK, JUNE 7.—Trade is less active, consumers generally anticipating Union victories, a reduction in the currency, and a decline in gold, buying very lightly, and await coming military events. Generally, a confident, though painfully anxious, feeling pervades the community as to the issue of the spring campaigns. The great concentrated armies in the field, the energy with which they are directed, the earnestness and determination of those who wield them, painfully stimulate the passion of this nation to maintain the integrity of its territory, its honour, prestige, and power, which are now all merged in the stupendous struggles of its armies—so that the very heart of our society, its trade and finance, pulsates with their movements. The fluctuations of prices follow the rate of gold, which, with fluctuations, has lately moved upwards. This is attributable to the increased expansion of the currency, and to excessive importations alone—hardly to any fears for the success of the army. The payments to foreign countries, however, if decisive military success should result, would be made largely in Government bonds. The difference between a Government bond, payable in currency at par, and gold at a premium of 90 per cent. will, so soon as victory shall indicate the security of such bonds, lead to large remittances or investments in such, and so to a gradual reduction of gold rates; but decisive military success only will ensure this, and the decline with such would be then by the 10 per cent.

ANTIMONY.—Dull at 16c. to 17c.

INGOT COPPER.—A combination has taken up 600,000 to 700,000 lbs. ingot, for future delivery, at 43c. to 43½c. The price is now 43½c. to

WATSON AND CUELL'S MINING CIRCULAR
published every Thursday morning, price 6d. or 1s. per annum, contains Special Reports of Mines, and the latest Intelligence from the Mining Districts, from an exclusive resident agent; also, Special Recommendations and Advice upon all subjects connected with Mining, and interesting to investors and speculators. A Record of Daily Transactions in the Share Market, Metal Sales, and General Share Lists, &c. Edited by J. Y. WATSON, F.G.S., and published by WATSON AND CUELL, 1, St. Michael's-alley, Cornhill, N.B. Messrs. WATSON AND CUELL have made a selection of a few dividend and progressive mines, which they have reason to believe will pay good interest, with a probability, also, of a rise in value, the names and particulars of which will be furnished on application.

MR. HOPTON'S NEW WORK, entitled CONVERSATIONS ON MINES, BETWEEN "FATHER AND SON," will have 13 plans on ventilation, and of working out coal, with plans to show how to dial, and also lay the workings on a plan.

Address Mr. J. J. CAMPBELL, Cropper's-hill, St. Helen's.
N.B.—The engraver requiring more time than at first expected, Mr. Hopton is very sorry the work is not yet ready. He thanks the subscribers for their great number of orders, and assures them every one shall be attended to.

STATISTICS OF AND OBSERVATIONS UPON THE MINES OF CORNWALL AND DEVON, For 1861, 1862, and 1863.
By THOMAS SPARGO, Mining Engineer, Stock and Sharebroker, Gresham House, Old Broad-street, London, E.C.

HISTORY OF THE RISE AND PROGRESS OF MINING IN DEVONSHIRE, From the time of the Phœnicians to the present.
By G. CHOWEN.
London: Published at the MINING JOURNAL office, 26, Fleet-street, E.C.

MR. JOHN H. CLEMENT, F.G.S., & Co., CONSULTING MINING ENGINEER, 8, GLOUCESTER TERRACE, CHURCH STREET, KENSINGTON, W.
Reports after inspection on any class of mines, quarries, or collieries in any part of the world. Promotion of companies undertaken, whether for foreign or home mines, quarries, or collieries.
Spanish, Mexican, or South American mines are considered by Mr. CLEMENT as first-rate properties for investment, Norwegian silver and copper mines as second to none.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly read on receipt: it then forms an accumulating useful work of reference.

SAFETY.—A machine has lately been invented and patented, by a friend of mine, for separating particles of iron and steel from brass and copper filings, and which has now been for some time in operation. The principle, I believe, is adapted, or capable of being adapted, to the separation of "gases," or other compound of iron, from tin ore. Would any of your readers send me a small sample—say, 5 or 6 lbs.—of the ore from the stamps, in order that I may test its efficiency? They should carefully weigh what they send, and I will return them the ore after it has been acted upon. By inserting this in next week's Journal you will oblige—C. W. OXFORD, C.E.: 58, New street, Birmingham, June 22.

COLOGNE MINING COMPANY.—Can any reader inform me whether this company is broken up, or where the offices are? As I have been one of the unfortunate holders both of the old and new issue of shares. The directors have sent no report to the shareholders for some years.—K. C.

BORING MACHINES.—Seeing in the Journal an enquiry of the Purser of East Gumbria Lake Mine what the result was of the trial of Crease's boring machine, and seeing no reply, as a Shareholder, I should like to ask the Purser who is paying the expenses of this long trial—whether it is borne by the patentee, or by the shareholders of the mine; also, what progress the trial is now making, and whether it is stopping the progress of the mine?—INQUIRER.

WENTWORTH CONSOLS.—As a shareholder in this mine, I should like some information with respect to its position and prospects. It is a singular circumstance, although unquestionably one that could be easily explained, that soon after the mine was placed before the public the shares were quoted 18s. to 19s., but as the "Important points," so magniloquently referred to by the projectors, were the nearer reached the less became the market value of the shares, until at length they are no longer quoted. Can this latter circumstance be explained?—A SHAREHOLDER.

BYRN GIGG.—I notice in your report of the proceedings of the general meeting of this company, which appeared in last week's Journal, that a call of 1s. per share was made. How does this contrast with the statements so frequently put forth during the past two years, as to the extraordinary richness of this property?—AMBERA.

ADVICE TO YOUNG AND OLD SPECULATORS.—May we not very properly remind the "cautious" gentleman, who proffered the above advice, that North Downs has not yet produced those brilliant results which he prophesied, for the shareholders have since more been called upon to pay 2s. 6d. per share towards liquidating the loss of between 800s. and 900s., the result of the past six months' operations? Without advert to the lamentable absence of anything approaching verification with regard to his prophetic wisdom in connection with Penden, West Trevelyan, Wheal Harriett, &c., I may, perhaps, be permitted to enquire when it is thought probable that dividends will be paid in Great Britain, from the "large percentage of silver" contained in the blende?—AN ADVENTURER IN BOTTLE HILL.

MINING IN IRELAND.—The letter from "Another Correspondent in the County of Cork" is too personal for publication in the Journal.

TWELVE APOSTLES MINE, NEAR WREXHAM.—Having seen many good reports in the Journal as to the value of the ground in the various parts of this mine, but which as yet have not been confirmed by sales of lead ore in the market, causes a doubt as to the genuineness of the statements so issued. On close enquiry, I am told the ores are not sold properly, but transferred into the hands of a middleman, who sells it to his own smelter. If true, this shows a strange course as to the company's management, which is always of vital consequence as to inducement to capitalists. The idea of selling 50 and 100 tons in such a way, in the face of so many merchants who are always open to the market, would seem as if there was a screw loose somewhere, and I am told there is; but doubts those interested will deem it their duty to look into the matter, and make any necessary alterations in the present system of conducting their operations, for it is too often the case, though it may not be in this, that the middleman is not the best agent a company can have, in returning either price or quantity. Let it not be considered possible that a Judas can exist among the Twelve Apostles of the present day.—J.

EAST PANT-DUG MINING COMPANY.—The statements of Mr. T. E. W. Thomas, in last week's Journal, are quite unworthy further notice from—S. MERRILEATHER.

IMPROVED MINING MACHINERY.—A recently-formed mining company, about commencing operations on a large scale, are desirous of obtaining information as to the best description of materials and general appliances required. With this view, they propose to give a sum of 20l. for a good epitome of the most approved machinery and mechanical apparatus essential for an extensive mining establishment. No elaborate details are required, merely a brief recital of inventions or articles, with their chief points of excellence, names of makers, prices, &c.—the object being to acquire precise particulars of the more recent improvements in mining and mechanical engineering materials before giving out their orders.

[A cheque for the above amount has been handed to the Editor of the Mining Journal, who has undertaken to forward all papers received to the donors, and to pay the amount to the writer of the one which they shall deem most deserving of it. It will, of course, be understood that the prize paper will be published in the Journal. All others will be returned, or published, as may be arranged. The desire to procure the most efficient machinery not being by any means confined to those offering the present premium; the Editor will undertake to publish brief mechanical descriptions of any improved apparatus which may have been invented by those not disposed to treat the subject generally, upon being furnished with the necessary particulars.]

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, JUNE 25, 1864.

The commercial horizon has been gradually darkening during the last month. Political events have cast a gloom over the fair prospects that until very recently existed in financial and general mercantile circles. The storm appears to be rapidly rising, and threatens, ere long, to burst over us. Many a well-conceived scheme will be abandoned in a state of immaturity, for no other reason than that legitimate enterprise is checked by the unnecessary caution that is often exercised in times of political uncertainty like the present.

It was anticipated by those who are most competent to form an opinion on the subject, that means would have been found by diplomatists for the avoidance of war, but we now greatly fear these anticipations and hopes will be disappointed, and that in a short time we shall most reluctantly be forced into a war for the maintenance of our country's honour. We hope, however, to be preserved from most of the concomitant horrors and calamities that would prevail if we were engaged in war with a maritime power.

The prudence and sagacity with which our Government have conducted the affairs of the nation has enabled the great representatives of commerce to regulate their operations in such a manner that in the event of peace being disturbed the species of panic and confusion which arose at the outbreak of hostilities with Russia, in 1854, will not again recur. It is doubted by some whether the present stagnation of trade will continue, to so great a degree, after an open declaration of war. The position of affairs at the present time is one of suspense, caused by a disinclination on the part of the

greater number of our largest capitalists to enter into any extensive commitments until the future course of events has been determined, and by much unwillingness amongst mercantile classes to pay a high rate of interest for money; consequently, for some time past there has been almost a total absence of speculation. As soon, however, as the worst is definitely known, a great deal of the present hesitation will be exchanged for vigorous action, and we may shortly expect a resumption of activity in most branches of commerce. Germany will be utterly powerless to interfere with our trade anywhere, excepting within her own territories; therefore, all we shall lose in commerce, will be the custom of the Germans for those commodities that we have been in the habit of selling them. On the other hand, we shall take from our own colonies much of what we at present buy from Germany.

Past experience has shown that, whenever our merchants have been excluded from any particular market, their energy and enterprise have quickly opened out a fresh one. It cannot be denied that recent political complications have exerted a very salutary influence in some quarters. The rage for joint-stock speculations was so great in April and the early part of May, and the facilities offered by stockbrokers for the promotion of new companies were so tempting, that many schemes of dubious character (if not positively hazardous) were thrust before the public; and the evil threatened to assume such dangerous proportions, that in this respect the rumour of coming war has been unquestionably beneficial to the commercial interests of the country. The great bulk of new joint-stock schemes will, however, probably be found to be based on sound principles, and these will now be enabled to strengthen and secure their position before the competition of mushroom concerns will again have the opportunity of injuring them. The species of securities that will depreciate the most in value are foreign loans and foreign railway shares. We have, on former occasions, pointed out these probabilities, and now again urge on our readers the desirability of investing their capital in British undertakings.

There is plenty of scope for the profitable employment of money in our own country and the colonies, and that upon security of a very different character to Spanish or Mexican bonds, or American Treasury notes, &c. The inconvenience of holding securities of this class will be keenly felt when war breaks out, and the value of English Government bonds will be plainly indicated by the maintenance of their position in the money markets and Exchanges.

Firmly convinced, as we all are, that nothing more materially affects the interests and well-being of England generally than her mercantile intercourse with the world at large, we naturally find greater attention paid at the present time to our commercial connection with other countries than there ever was before. Dependence is an essential consequence of great international trade; and, if we grant this as true, there cannot be a more important subject for our consideration than the conditions under which, and more especially the probable duration of those sources of particular articles of trade with which we are most intimately connected. Now, we, as miners, more particularly address ourselves to that branch of commerce dependant on our supplies of metals; and, since some of those countries whence our metallic imports are derived present features so entirely different to those which characterise our English mining districts, it cannot but be interesting to miners and consumers all to point out some of the more striking peculiarities of certain foreign metal-bearing strata, confining ourselves especially to copper-bearing strata.

Space does not permit us to enumerate more than a few of the more striking districts, nor does it allow of our entering on geographical descriptions of their positions, and we would only wish to mention some of their geological and mineralogical points which distinguish them from our English copper districts. Of late we have had peculiar opportunities, through the Mining Journal and other periodicals, of noting the more important copper-yielding countries, and it must have been apparent to the most casual observer of these that Chili stands first and foremost as our source of copper. Now, Chili has occupied this prominent position for years past, and yet still continues to do so; and, in reviewing the richest mines as yet worked in that country, we cannot remember one more interesting geologically, or more valuable commercially, than the great mine of San Pedro, owned by Mr. Sampson Waters, of Falmouth. Situated in a nest of hills, San Pedro lies about 70 miles inland from Chanaral, a small port north of Copiapo, which latter place has been notorious in Chilean annals, or rather we may say in South American history, for its silver mines. Riding up from Chanaral on mule back to San Pedro, the country is remarkably barren, there not being a blade of pasture to cheer the eye, a condition of things, as may be supposed, peculiarly advantageous to the miner seeking minerals. As we approach the neighbourhood of the mine we observe spots of a greenish colour, indicating the presence of some salts of copper; and it was by these surface indications that the discoverer of San Pedro was attracted while prospecting for mines. The large amount of greenish gossan on this particular spot induced the finder to remove the surface, and he had no sooner done so than was revealed to him a deposit of rich grey sulphide of copper. We use the word deposit here purposely, for no traces of a resemblance to a vein could be found in the adjacent rock, the ore being confined to an oblong mass 75 ft. long by 54 ft. wide. We very much doubt if any similar deposit of ore has ever been discovered. Just picture an almost solid mass of grey sulphide of copper, containing more than 30 per cent. of metal throughout it, embedded almost perpendicularly in the earth. It outcrops nearly at the summit of the mountain, and is worked from the top, arches of ore being left at intervals to prevent the adjacent country from falling in. Unfortunately, however, we fear from the desire to leave only just what was considered a sufficiently strong arch, the sides have fallen in, and it has been necessary to open another channel to the unworked ground. In consequence of this, for a time no ore can have been extracted from this most wonderful place, but the new channel must now be almost, if not quite, opened; and, when it is so, we may expect a continuation of our former supplies from thence, which in amount we believe has been rivalled by no mine in the world in proportion to the ground opened. San Pedro yielded for some months from 750 to 1000 tons of grey ore of 30 per cent. per month.

So much for the ore itself. Now, as to the containing rock, in which this pillar of ore occurs, we think it is diorite, although the present manager of the mine, a man of great practical experience in Cornish mining, would rather call it elvan, yet he, at the same time, admits that it does not exactly resemble any elvan he has ever met with in Cornwall. In sinking on the deposits at intervals, patches of a dark tuffaceous rock are found, with some quantity of a soft white stone, very like decomposing felspar in appearance. In depth the containing rock has increased in hardness, and with this increase of hardness the size of the deposit has somewhat diminished, whilst at the same time the ley, or percentage, of the ore has increased from 28 to 32. In attempting to estimate the probable duration of the mine of San Pedro, we are quite at a loss, as we cannot argue from any deposit in any part of the world; and all we can say is, that hitherto the diminution of the pillar in depth is not such as to make us think it can be soon worked out.

We will now pass to another almost equally famous mine—the Cobre Mines of Cuba. The mineral veins, of which there are three in these celebrated mines, occur in large-grained porphyry near its contact with conglomerates. The strike of the lodes and veins is coincident with the strike of the porphyries and conglomerates, and with the direction of the mountain ridges, all running nearly east and west. The dip of the lodes is south, that of the bedded deposits north. The greater part of the ore derived from these mines has been extracted from a space not above 1000 yards in length, and 250 yards in width. When discovered the surface of the ground seemed to be nothing but a gossan of great width, presenting a ferruginous appearance. This upper crust, however, was shallow, and was no sooner removed than a splendid vein of black and red oxide of copper was revealed, and from which millions worth of copper were dug out. At some 20 fathoms from surface the lode became more massive, and changed from oxides into sulphides of copper. All the lodes have proved peculiarly lumpy. The difference between the class of ore found at the surface of these veins and that which they have yielded in depth is due, undoubtedly, to the action of the air and the numerous surface agencies on the exposed sulphides of copper, and by which the sulphides became converted into oxides. The ore ground of the Cobre Mines terminates suddenly on its west side in meeting with a cross-course. Iron pyrites in most uncertain quantities has been a characteristic of the lodes throughout their depth. The most remarkable feature in these Cobre lodes is their occurring in ground which we should hardly infer would be mineralised, from the fact of the rocks being chiefly formed of frequent alternations of metamorphic and mechanically formed beds. Other districts there are in Cuba where copper is found in granites and syenites.

We have in the foregoing observations drawn attention to some of the more rare and irregular metallic deposits which have come under our own

immediate observation, and our object in doing so has been to add if possible a little to that store of facts required to release from its present chains the great question of the formation of metallic deposits. We think our only chance of solving this question will be by pursuing a rigorous course of induction, founded on close observation. Hitherto miners have neglected to record their experiences, and we are as yet in no position to determine which of the numerous theories propounded by men of science to account for the presence of metallic bodies in veins or irregular deposits is correct. Deplored, then, as we all must, the want of that knowledge by which alone we can gain our end, we would earnestly invite all interested in mining who have the opportunity of observing peculiar phenomena connected with mineral deposits to record carefully all they see, for by this process alone can mining enterprise rid itself of that appearance of chaos by which its due appreciation has been hitherto clogged.

A FRENCH VIEW OF THE ENGLISH COAL TRADE.

The committee of French coalowners has reviewed the position of the English coal trade in 1862-3. The committee seems thoroughly impressed with the greatness of British coal mining industry, as it well may be, seeing that the English production, although slightly reduced in 1862 as compared with 1861, was 82,000,000 tons, while the production of France, although pushed forward with all earnestness, only reached an aggregate last year of 10,000,000 tons. The committee also records with respectful astonishment the fact that the consumption of the London market is 5,000,000 tons per annum, or nine times as much as that of Paris, while a coasting trade of 10,000,000 tons per annum exists on the British coast line, and on the French coasts no corresponding trade prevails. To compare French industry with English industry would, the committee considers, be truly regrettable in presence of such circumstances; and it seems to think that it is necessary for France to resign herself to consider as her superior in metallurgical industry, and in manufacturing processes, the country which disposes of such a power. The committee admits that this opinion is not likely to be well accepted in France at the present time, accustomed as the French are to pompous dissertations on their developed and undeveloped resources, their commercial power, and their industrial future. If, however, the facts are analysed, the committee thinks that in presence of English industry, of which the national coal production is the most real and sure expression, it will be seen that it is a hard matter for the French to enter the lists as industrial competitors with the English. The immense coal production of England equalling that of almost all other nations united—France, Prussia, Austria, America, &c.—is not a fact which is to be attributed to the nation; it results from the constitution of the soil. Coal is a gift, says the committee, which Nature has made to England on the largest scale, and on the best conditions, while in all other countries coal is distributed with parsimony, and under conditions less favourable for working. The superiority of England, the committee considers, results from its insular situation, its narrow and elongated form, and the multiplicity of the ports which line its coasts, so that there is no industrial establishment situated in this narrow zone, which finds itself at a distance of more than 50 or 70 miles from a port from which it could economically transport its products. According to the French coalowners, all is, then, the work of Nature, and England must necessarily arrive at the first rank in economic fabrications, from the economy resulting from the low price of coal, the extent of production, and the facility of deliveries. For France to seek to struggle against a country so well endowed—France, with inferior elements, with central establishments, situated at 250 to 350 miles from the littoral—would be all the less possible, since coal, which is worth 10s. on the mouths of French mines, sells for scarcely 5s. under similar circumstances in England. But it is said by some persons in France, "Let us take coal in England, and we will then make what the English manufacturers make."

This is scarcely admissible, since coal, which is worth at the pit's mouth in England 5s. per ton, costs already 6s. to 6s. 6d. per ton when transported to the sea and put on board a ship. It would then have to be carried to one of the French ports, and the freight varies from 8s. to 11s. 3d. per ton. English coal costs, then, in the French ports 16s. to 17s. 6d. per ton. It is then necessary to disembark it, carry it to the works on the coast, and undergo and calculate on all losses; so that if English coal, delivered at the furnaces where it has to be consumed, only costs 19s. or 19s. 3d. per ton, the importer or purchaser considers himself very fortunate. But how does this compare with the 5s. to 6s. per ton which corresponding works in England would pay for coal? Industry carried on in the French coast-line with English coal would be still more artificial than that of the departments in the centre of France, and a few small establishments, responding to local wants, can only be maintained.

Adverting to the well-known fact that the importation of English coal into France declined last year, the committee observes that this result arose, first, from the reduction of consumption in districts which have cotton for the principal basis of their industry; and, secondly, from the rise in freights. This elevation in freights, coupled with the scarcity of ships, impeded in a notable manner deliveries of coal, which are always considered as a comparatively unfavourable freight. If communications from Nantes, Havre, and Rouen to the departments of the Centre had been better assured by internal navigations—if canal dues had been suppressed on coal—the committee entertains no doubt that French coal would have taken on the markets of the littoral a position which would have been very profitable to consumers. We have summarised some of the opinions calmly and dispassionately expressed by the committee. The views enunciated support in substance the conclusion at which we have previously arrived in these columns that, after all, England has material power and realised success on her side. France appears in a rather unpleasant dilemma. First of all, she does not produce all the coal she requires; secondly, she is obliged to resort to importations, to which she has an aversion; and thirdly—according to the committee of coalowners, at any rate—she cannot import English coal so as to use it profitably. Yet she does import it to a considerable extent, and, for all that can be said to the contrary, she appears now to have attained a better commercial position than she ever occupied at any previous period of her history.

EXPORTS TO FRANCE.—In the twelve months ended Dec. 31 last the total declared value of British produce and manufactures exported from this country to France amounted to 8,667,138l. In the preceding year the aggregate was larger by little more than half a million sterling. The most important items are coals, hardware, and cutlery, haberdashery, machinery, iron and steel of all kinds, copper and tin, wrought and unwrought, sheep's wool, cotton, linen, silk, and woollen yarn, and manufactures. In the subjoined table are the values of the chief commodities of British produce or manufacture, shipped from the United Kingdom to France, in the years 1862 and 1863, specifying the respective increases or decreases:—

| | YEARS ENDED DECEMBER 31. | Increase. | Decrease. |
|------------------------|---------------------------|-----------|-----------|
| Alkali—Soda | 1862. 39,221 1863. 61,285 | 22,064 | — |
| Coals | 611,942 544,211 | — | 67,731 |
| Machinery of all sorts | 352,742 362,527 | 9,785 | — |
| Iron of all sorts | 1,048,626 729,766 | — | 318,860 |
| Steel | 105,541 82,757 | — | 22,784 |
| Copper, unwrought | 306,020 593,550 | 287,530 | — |
| Copper, wrought | 74,271 256,379 | 182,068 | — |
| Lead and shot | 10,261 16,683 | 6,422 | — |
| Tin, unwrought | 107,572 139,598 | 32,026 | — |
| Tin-plates | 65,192 29,226 | — | 35,966 |
| Oil, seed | 262,614 162,792 | — | 99,822 |

Of foreign and colonial produce the shipments have increased from a total of about 4½ millions in 1858, to one of 12½ millions in 1862, the latest year to which the returns of this class of exports have been completed.

LEAD EXPORTS.—The exports of lead appear to have been, on the whole, extending of late years. Thus the exports of pig, sheet, pipe, and shot have been as follows year by year since 1849:—

| | 1849. | 1850. | 1851. | 1852. | 1853. | 1854. | 1855. | 1856. | 1857. | 1858. |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Tons | 17,026 | 18,544 | 19,805 | 22,247 | 23,797 | 25,797 | 27,797 | 29,797 | 31,797 | 33,797 |
| Value | 21,916 | 23,916 | 25,916 | 27,916 | 29,916 | 31,916 | 33,916 | 35,916 | 37,916 | 39,916 |

To these totals must be added the following quantities of lead ore, red and white lead, and litharge:—

| | 1849. | 1850. | 1851. | 1852. | 1853. | 1854. | 1855. | 1856. | 1857. | 1858. |
|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| Tons | 3,979 | 4,884 | 5,789 | 6,694 | 7,599 | 8,504 | 9,409 | 10,314 | 11,219 | 12,124 |
| Value | 4,884 | 5,789 | 6,694 | 7,599 | 8,504 | 9,409 | 10,314 | 11,219 | 12,124 | 13,029 |

So much for quantities; now for values. The value of the pig, sheet, pipe, and shot exported in 1849 was 287,737l.; in 1850, 387,394l.; in 1851, 344,315l.; in 1852, 353,180l.; in 1853, 376,940l.; in 1854, 466,967l.; in 1855, 513,315l.; in 1856, 582,269l.; in 1857, 549,523l.; in 1858, 459,952l.

in 1859, 480,845; in 1860, 543,299; in 1861, 423,421; in 1862, 766,484; and in 1863, 776,067. The value of the lead ore, red and white lead, and litharge, exported in 1849 was 81,981; in 1850, 104,833; in 1851, 86,166; in 1852, 77,526; in 1853, 81,086; in 1854, 90,552; in 1855, 135,144; in 1856, 151,935; in 1857, 175,229; in 1858, 155,263; in 1859, 187,237; in 1860, 157,987; in 1861, 146,701; in 1862, 172,634; and in 1863, 158,774.

PATENTS IN ENGLAND AND AMERICA.

The Introductory Report for 1863 of the United States Commissioner of Patents is particularly interesting, since he departs "from the formality of a mere official communication, and addresses himself through Congress" to the public, for whose benefit the reports are mainly intended. The subject to which he calls attention is—the policy of any system of protection by patents, the advantages of the American system as compared with those of other leading industrial nations, and particularly Great Britain; the state of the industrial arts in America, as exhibited by the inventions examined in the office within the last one or two years; and the modifications of Patent Laws, which, in his judgment, would give greater efficiency to their present system. With regard to the policy of protection by patents, the Commissioner observes that he is aware that to most inventors in America it would seem not less preposterous to question the right of property or the fundamental laws of morality, than to enquire into the right and policy of granting patents for inventions, but we cannot shut our eyes to the fact that, within the last few years, the policy of Patent Laws has been the subject of grave discussion in Europe, and he then cites portions of the evidence taken before the Select Committee of the House of Lords, previous to the passing of the Patent Law Amendment Act of 1852.

The Commissioner considers that the objections to the policy of a system of protection by patents, as appears by the questions propounded by the Committee of the House of Lords, and the answers given, may be resolved into three classes.—1. Those who honestly doubt whether the system of patents affects the assumed development of the industrial resources of the nation.—2. Those who believe that the progress of a nation is to be secured only through the encouragement and instrumentality of the favoured classes.—3. Those who, carrying the abstract principles of free trade to too great a generalisation, deny the policy of any law which favors of a monopoly, or effects even a temporary protection of industry and genius. After mentioning the monopolies granted by Queen Elizabeth, and the Statute of Monopolies of James I., he observes that it is a curious fact in the general history of the origin of the patent policy that the original object in granting patent privileges in France, as stated by M. Wolowski, Professor of Commercial Legislation, in the evidence before the Committee of the House of Lords, was to break up the monopoly of the guilds of trade which formerly existed in France, as well as in almost every city in Europe. All the persons practising any art or trade in a particular city, such as the tailors, the brewers, the tanners, the goldsmiths, &c., were united into a company, which received from the Government the exclusive right to practice their vocation. The competition of the art or trade was thus restricted to those who had been made free of the company; and no person could be made free until he had complied with regulations, often intentionally made numerous and vexatious in order to prevent too many persons entering the business. No member of the guild could work except in conformity with its rules. An inventor of any improvement in the trades practised by the guild, not a member thereof, could not employ his own invention: a patent gave the inventor the right of working individually, in derogation of the chartered monopoly of the guild. According to M. Wolowski, patents are now granted in Austria for the same object. Thus the dawn of the rights of inventors has been actually coeval with the destruction of monopolies, odious to the common justice of men. And the common sense of mankind has marked a distinction between such monopolies and the exclusive rights conceded to inventors. Their rights under patents are called monopolies only from the poverty of language, which has failed to express in words a distinction which no less clearly exists.

The odious monopolies, or those properly so called, such as were given in the time of Elizabeth for the sale of salt, starch, paper, steel, &c., were grants simply to aid individuals in amassing wealth, and favoured the aggregation of property in a few hands, without opening new sources of national wealth, and were thus in derogation of the rights of others, without compensatory public benefit, and were, therefore, positively injurious. He continues that, according to Prof. Bowen, "Invention is the only power on earth that can be said to create. It enters as an essential element into the process of the increase of national wealth, because that process is a creation, and not an acquisition. It does not necessarily enter into the process of the increase of individual wealth, because that may be simply an acquisition, not a creation." "Hence," continues Mr. Bowen, "the most frequent cause of the increase of national wealth is the increase of the skill, dexterity, and judgment, and of the mechanical contrivances with which national labour is applied." In this view, how can a monopoly of a trade be compared with the exclusive right in an invention? How can the exclusive privilege to sell salt in Elizabeth's time, which added not one bushel to the production, but which enriched the monopolist, and robbed the community, as was the fact by raising the price from 1s. 4d. a bushel to 15s., and the exclusive right of Whitney to his invention of the cotton gin, which has added hundreds of millions to the products and exports of the country, be both branded, with equal justice, with the odious name of monopoly?

The opinion that, "in no instance has any manufacture grown into importance in this country except by a series of costly experiments and costly machinery, carried on for many years in the hope of deriving benefit through the grant of letters patent," appears to fully accord with that of the Commissioner, and he quotes the opinion of Mr. Webster, that "if any person who may be disposed to think that patents should be done away with, comes to examine the way in which particular manufactures have been built up, by reason of the large amount of capital which has been thrown into them, in reliance upon the action to be obtained by means of the protection given for a short time, he will be very much surprised. In some of the most successful inventions of the present time it will be found that the first patent effected little; but, in attempting to work this out, further improvements were made, and fresh patents obtained, so that by the protection which has been given to different stages of the invention, and the quantity of capital which has been laid out upon it, the invention has been perfected and introduced, and made useful to the public, in a time within which it never could have been done but for the money which has been employed upon it, in reliance upon the protection of the patent. The history of the discovery of the process of vulcanising India-rubber, and Bigelow's improvement in the carpet loom, the perfecting of which cost many hundred thousand dollars, though it has since yielded over \$1,500,000 profit, and the inventor has received over \$50,000 as royalty.

In justification of the United States patent system, the Commissioner states that it is founded mainly upon the statute of 1836, framed under the advice of the most experienced lawyers of the period, but carried through by the energy and wisdom of a distinguished senator of Maine, Mr. Rugles, who deserves the grateful acknowledgments of the country for securing the passage of an Act which has proved one of the most beneficial in American legislative history. The characteristic feature of their patent policy is the system of examination as to the novelty of inventions, conducted by the Commissioner of Patents through an examining corps, selected for their special accomplishment in the arts which it is their duty to examine. No system of examination like this exists in Europe, except to a very limited extent. In Great Britain, France, Austria, Belgium, Spain, the Roman States, Sardinia, and the Sicilies and Saxony, there is no examination as to novelty. In Prussia, Russia, the Netherlands, Hanover, and Bavaria there is an examination by learned societies and commercial boards, instituted mainly for other purposes, but the whole number of patents granted in the last-named countries in 1858 was only 173; while in the first-named countries, in the same year, there were issued 10,297 patents. So that, considering the number of patents issued, the peculiar system of America stands comparatively alone among those of all civilised nations.

Referring to inventions connected with Metallurgy, he states that—In roasting ores an important improvement has been made, which consists in passing the ore in fine powder through flame, or the hot gases from combustion. By this process, each minute particle of ore is roasted by itself, and the result is that the roasted ore is in a fine powder, instead of being in an agglomerated mass, as it is when the ore is roasted in a heap. It is well known that but a small part of the gold in pyrites ore is obtained by the ordinary modes of working. If not roasted, the gold is encased in the common mode, so as not to be reached by the mercury. If the ore has been roasted in a heap, the increasing stay or earthy oxides still protect the gold, to a great extent, from the action of the mercury. By the new mode of roasting, it is believed that the precious metals will be found diffused through the fine powder in globules, of easy access to the mercury. The powdered ore may either be blown through the flame from a reverberatory furnace, or it may be allowed to fall through a shaft, and then be raised upon while falling by flame and hot vapours or gases. Immediately after the ore leaves the flame it is thrown or falls into water, whereby the earthy matters in it are further disintegrated. The production of iron and steel has been greatly advanced during the year. The principal aim of inventors has been to produce the better qualities

of iron, and, especially, to make iron possessing many of the qualities of steel. The large demand for the best kind of iron for war and naval purposes, and for the production of a better class of agricultural implements, has greatly stimulated this branch of industry. It has long been an object with inventors to make malleable iron on a large scale directly from the ore, instead of first making pig-iron, or cast-iron, and then burning out the carbon in it by puddling or other means. Several patents have been issued for accomplishing this. These are on the principle, not now new, of reducing the ore by the hot products of combustion, yet keeping the temperature so low as not to fuse the mass of ore. When reduced, the metal is raised to a welding heat, and at once formed into blooms, one fire serving both for the welding and the reducing processes. Several minor improvements have been patented on what is commonly known as the Bessemer process. Three patents have been issued for making steel, by combining in different modes cast and wrought iron, the novelty consisting only in the mode of effecting the result. One of these processes consists in heating in a crucible the wrought-iron to a white heat, and then letting into the crucible pig or cast iron directly from a blast-furnace or cupola. Another inventor makes a kind of steel iron, by melting together, in proper proportions, particular kinds of cast-iron and bar-iron. The third process consists in treating the cast-iron on the puddling-hearth until it becomes granular and spongy, then throwing it into water, and reducing it to powder. This powder is then enclosed in a wrought-iron box, which is subjected to a welding heat, and the box and its contents placed under the hammer.

Two patents have been issued for new alloys of the metal aluminium. By one of these very close imitations of gold are obtained. The other is for an improved gun-metal. About 20 patents have been issued for improvements in gold-washers, ore-separators, and apparatus for collecting gold and silver by the process of amalgamating them with mercury. Compared with former years, this shows increased interest in mining for the precious metals. Several of these improvements are for the new mining fields of Nevada and Colorado territories. It is scarcely possible to classify the inventions in this department. For a while most of the devices consisted in making different parts of the machines of amalgamated plates. For grinding and amalgamating at the same time, all the known machines have received improvements. The ordinary tub and corrugated mill is more used in California, but not to the exclusion of theastra and German barrels. In washers and separators the gig-mill seems now to be the favourite, though the old-fashioned ripple and sluice machines have received considerable attention.

The Commissioner further observes that a modification of the existing laws has been suggested by patent solicitors of great experience, which commends itself to his approval. It has been repeatedly decided by the courts that the application of what is old to a new purpose is not patentable. The records of the office show that hundreds of patents have been granted in defiance of these decisions, while an examination of the rejected department will bring to light as many applications which have been refused upon reference to these decisions. It is difficult to conceive of any sound reason why the application of what is old to a new purpose should not be the subject of a patent.

THE GAS-POWER ENGINE.

At the time of the International Exhibition, in 1862, reference was made in the *Mining Journal* to a very efficient gas-power engine, invented by Mr. Lenoir, of Paris, and exhibited in the French machinery court; it appears that the machines are now being manufactured in this country by the Reading Ironworks Company (Messrs. Barrett, Exall, and Andrews), at their Kate's Grove Works, and, as they possess the great advantages of economy, compactness, and efficiency combined, they will, no doubt, gradually come into use. They require no boiler, chimney, or expensive setting; they are of neat appearance, clean, free from all smell and danger, can be instantly set at work and as readily stopped, all expense ceasing with the stoppage. The Lenoir gas-engine consists of a cylinder laid horizontally on a cast-iron frame, and a piston which is moved in the cylinder, and which, by a connecting-rod, transmits the motion to the horizontal shaft on which the fly-wheel and motive pulley are fixed. The gas is introduced from the ordinary service pipes through a vulcanised India-rubber bag, the object of which is to regulate the flow of gas, and to prevent any sudden jerking in the gas pipe. The valve opening to the cylinder is connected with an eccentric in the usual way. Two Bunsen's piles, sufficient to produce the electricity, are placed at a little distance from, and in communication with, a Ruhmkorff coil. The electric current of this apparatus is conducted by means of insulated wires to the distributor, placed on the front part of the frame of the machine; and the course of electricity, and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor. The burnt gas, after having done its work in the machine, escapes, and a supply of cold water is admitted to cool the passage. The machine is easily started and stopped, and a metre such as is ordinarily used for 20 burners will pass sufficient gas for a one-horse power engine.

To keep the apparatus in good order, it is recommended that the machine should be carefully cleaned when stopped, and occasionally thoroughly examined, and the inlet and outlet vents cleaned of any deposit from the gas. Among the general directions it is recommended to avoid as much as possible for rubbing the polished pieces the employment of emery paper, clay, ochre, sand, dust, and all hard substances reduced to powder, for if any grains remain between the parts rubbed they will alter them sensibly. It is well in a manufactory to keep the machine in a glass closet. Examine the covering and the pipes through which the water circulates, to see whether, under the influence of heat, the water has not deposited calcareous incrustations, which it will be necessary to scrape off in order to avoid obstructions. Keep in good condition the packing through which the piston-rod passes, by changing from time to time the hemp. This care is very important, to prevent losses and exhaustion. From time to time ascertain whether there is too little or too much water in the box of the meter, either of which is prejudicial to the working of the fly-wheel, and also completely interrupts the passage of the gas. If the meter should remain a long time without work, have the fly-wheel worked occasionally by the hand to change the position and contact of the parts. If, after the machine has been at work a few weeks, it be found that the valves have too much play, fasten with precaution the bolts that keep them in place; but if fastened very tight it will increase the friction. Examine frequently, at least every morning, before work is begun, the inflammators; clean the platinum burners and the porcelain buttons with water made strongly alkaline with potash. Replace the piles every four days, and if you do not wish to lose electricity remove the zinc cylinders after the work, and let them dry; they will last a long time. It is equally important to take from the acidulated bath water the porous jars that contain the nitric acid.

As has been already explained, the principle of the machine consists in employing an explosive mixture for propelling the piston, and igniting the same to produce the necessary vacuum. The principal difference in outward appearance between the Lenoir engine and an ordinary horizontal steam-engine is, that the former has on each side of the cylinder a large rectangular hollow slide, which so communicates with the cylinder that at each end of the stroke there may be admitted a mixture, consisting of one part gas, which is supplied from the ordinary main, and nine parts atmospheric air. Upon the piston reaching the end of the stroke the mixture is ignited by an electric spark, obtained from an ordinary voltaic cell, the product of the combustion escapes through the exhaust, and the process is repeated. The engine works with the greatest regularity, and, under certain circumstances, would possess undoubted advantages. No boiler, fire, or other supplementary apparatus is required; and, on the gas being turned on, the engine is in full work in less than 10 seconds. The engine consumes about 50 cubic feet of gas per horse-power per hour, and works with the greatest regularity and precision. In cases where steam-power would be totally inapplicable, owing to its being required only for a brief period of time daily or weekly, the gas-engine would prove invaluable, the engine necessitating no expense whatever, except whilst actually employed.

IMPROVED BLASTING-POWDER.—Messrs. Schäffer and Budenberg, of Beckau-Magdeburg and Manchester, have patented an improved blasting-powder, which consists of the combination of nitrate of potash (saltpetre), nitrate of soda, sulphur, wood charcoal, coal, and nitrochloride (potassium chlorate of soda). They may be combined in the proportions—saltpetre, 30 to 38 parts; nitrate of soda, 40 parts; sulphur, 8 to 12 parts; wood charcoal, 7 to 8 parts; common coal, 3 to 4 parts; and potassium-tartrate of soda, 4 to 6 parts, which are mixed together, after being reduced to fine particles. These proportions may be varied. By the combination of these matters a combustible composition is obtained particularly applicable of blasting purposes, by giving increased effect with a slow and perfect combustion.

COAL-WASHING.—Mr. Isaac Francis, of Nant, near Wrexham, has recently invented an improved slack-washing machine, which the Broughton Coal Company, who have had it for some time in operation, state does its work well, whilst its very great simplicity and cheapness are strong recommendations in its favour. The apparatus consists of an ordinary trough, 12 in. square and 12 ft. long, mounted on trunnions, and slightly inclined; the slack is dropped in from a suitable hopper at the upper end, and the water to wash it is let in from an ordinary service-pipe. At the lower end of the trough is a sluice-valve, which is raised and lowered by a screw. It is estimated that this machine, supplied with 50 gallons of water per minute, will yield 30 tons of clean slack in ten hours, assuming the slack washed to be about one-third refuse; the quantity of clean slack obtained would, of course, depend upon the quantity of water supplied, and the amount of impurity with the slack. The water is the only power employed to drive the slack forward. In its passage along the trough the

slack becomes separated from its heavier impurities, such as shale and pyrites, which are deposited on the bottom, and gradually cover it; if the process were continued without impediment the pyrites, &c., would be washed over with the slack, but this is prevented by the sluice working up through the bottom at the lower end being gradually raised to keep the shale, &c., back, whilst the clean slack is washed over. When the trough is nearly full of refuse, it is emptied by being tilted on the trunnions. It is mentioned that during the past half century the system of washing and dressing ores has doubled the value of lead, copper, and tin mines, and that during the past few years coalowners have found it advantageous to wash their small coal for coke-making and other purposes.

REPORT FROM NORTHUMBERLAND AND DURHAM.

JUNE 23.—The demand for coal and coke is, on the whole, good, but complaints are heard of dullness in some branches: we believe this is confined to the gas and house coals, and, of course, at this season dullness is always more or less felt in those branches. So far a finer season has hardly been known in the North, and the crops of grass and grain look very well, so that it may be expected that the provender for horses will be cheap, and this is a very serious item in the cost of working collieries. An early harvest, also, appears to be very probable, if not certain.

Several meetings have been held lately on the subject of the "Miners' Permanent Relief Fund," and although the progress of this fund has hitherto been slow, it is evidently gaining ground, and is gradually making greater progress among the miners of the North. Important meetings have been held lately at Ouston Collieries, and also at the Walbottle Collieries. At the former place the meeting was held at Perkins Villa, Captain A. Hunt, one of the owners of the colliery, presiding. Addresses were given by Mr. Taylor, of Newcastle, and by Mr. A. Blyth, of Dudley, the secretaries of the Fund. There was a good attendance, consisting of men employed in the district. On Monday evening last a tea meeting, in furtherance of the objects of the Fund, was held at Walbottle Colliery. At the meeting held afterwards, Mr. Ramsay, the viewer, presided, and urged the miners present to join the society. It transpired at the meeting that 250 miners are employed at those works, and only 70 of that number are members of the Fund. Mr. Taylor, of Newcastle, narrated a case in which a miner had become a member of the association, and had neglected to pay his subscriptions for twelve weeks, which disqualified him from receiving the benefit of the fund, and in the thirteenth week he was killed by a fall of stone whilst at work. He concluded by appealing to all the miners present to contribute towards the association. Mr. Blyth explained the financial working of the fund, and Mr. T. P. Barlas also delivered addresses, and explained the objects and advantages of the institution.

On Saturday morning last the committee of the Fund held their quarterly meeting at the offices of the society, Grainger-street, Newcastle. Mr. John Howie presiding. After the transaction of the routine business, the committee adjourned to another place, where the chair was again occupied by Mr. Howie, and Mr. Weatherly, of Barradon, then, in pursuance of a resolution of the last annual meeting, and on behalf of the society and committee, presented the treasurer, Mr. Leithead, with a handsome testimonial, consisting of an electro-plated tea and coffee service, and a microscope, with object glasses, &c., as a token of confidence and esteem. Mr. Leithead suitably acknowledged the present, and the meeting separated.

One of the largest vessels ever built on the Tyne was launched on Saturday—the *Erin*, built by Messrs. Palmer, at Jarrow. This vessel has been built for the National Steam Navigation Company, and is intended for the Atlantic passage, to run between Liverpool and New York. Her carrying capacity is estimated at 3500 tons. Her length over all is 385 ft.; length at load line, 360 ft.; beam, 41 ft. 3 in.; depth, 28 ft. Her engines will be of the nominal horse-power of 350, but will work up to 1500 horses. The vessel, when finished, will be a most magnificent specimen of naval architecture, and it is expected to be, not only a safe and substantial vessel of great capacity, but a very swift one. All the recent improvements have been introduced into engines, machinery, &c. Two vessels, exactly similar, are in course of construction for the same company—the *National Steam Navigation*—and also several others of smaller size.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

JUNE 23.—The Iron Trade looks fully as quiet this week as last. The question of the future import duties in the North American States is still undetermined, but it is generally anticipated that heavy duties will be imposed on British iron, and the last mails have brought a good many countermands. As repeatedly insisted upon in this letter, the course the trade will take with America is pretty sure to determine the range of prices here, and the check to the American demand is depressing the markets; yet the general conviction is still that prices will not be altered at the Preliminary Meeting on this day week. The trade is in an anomalous position. The notices to the colliers and blast-furnace men in the thin coal district for a reduction of 10 per cent. expired on Saturday last. The men have in a great many cases gone to work at the reduced prices, and all fear of a strike, which was never regarded as likely, is at an end in this part of the South Staffordshire district. In the Dudley and Westmoreland district the blast-furnace men are refusing to accept the reduction, and are out. The result is that a great number of blast-furnaces have been blown out already, and unless the men yield it is said that by the end of the week some thirty will be put out. Pig-iron, which was selling rather better this week, is again in little demand, and the pig-makers are by no means unwilling to reduce the make, though the blowing-out and re-lighting of furnaces is an expensive operation. It is regarded as certain that the reduction of miners and blast-furnace men's wages will soon be an accomplished fact.

Hitherto a fall in the wages of these branches has been accompanied by a corresponding reduction in the wages paid to puddlers, shinglers, mill-men, and others employed at the works for the manufacture of finished iron, but at the present moment the reduction in the last department does not appear practicable, really because this class of men, but especially puddlers, are not in excess of the demand. This question is very closely associated with that of the reduction or otherwise of the list prices of manufactured iron. That it is desirable to lower prices in Staffordshire 17 per cent everyone appears to admit. Orders are going away which should come here, but then a reduction in the price of iron without a reduction in wages is a serious matter. Already the puddlers have gained on the old proportion 6d. per ton, and if iron were reduced, and the same wages paid for a time, it would be taken for granted by the men that the relation of wages and iron thus established is to be the permanent one, and new difficulties would be laid up in store. Again, ironmasters may now adopt their contracts to the mode somewhat without any formal alteration, and then the change may be made, should it still appear necessary, when from the reduced heat of the weather permitting of more work being done per day, and the increased supply of men which high wages must bring, it may be practicable to reduce the men's wages simultaneously. Such appears to be the predominating feeling, but it is seldom that the course to be pursued by the trade is so much a matter of discussion as at the present moment.

The Cannock Chase and Wolverhampton Railway, the bill for which has passed the House of Commons' Committee, will be an important means of conveying the Cannock Chase coal to the great population and the large works near Wolverhampton.

Some time ago, the increased use of locomotives on tramways at the ironworks and collieries of South Staffordshire was noticed. The practice has now been fully tested by protracted trial, and the great saving which results is extraordinary, the cost, as compared with horses, being, it is said, only about a third. At one large concern the tramway is only 2 feet 6 inches wide.

The mining arbitration case, in which the Stourbridge and Kidderminster Banking Company and Messrs. Jesse and D. S. Moore, of Walsall, with also the representative of Thomas Moore, were the plaintiffs, and Mr. H. B. Whitehouse (assigned from Mr. Benjamin Gibbons) was the defendant, was concluded on Friday, at the Hen and Chickens Hotel, Birmingham. The plaintiffs were represented (as at the previous two sittings at Wolverhampton) by Mr. Mills, of the Midland Circuit, instructed by Messrs. Stubbs, solicitors, Birmingham, and the defendant by Mr. Mottram and Mr. Grey, both of the Oxford Circuit, instructed by Mr. Brown, solicitor, Bilston. The first hearing under this arbitration, in which Mr. Blackwell was the arbitrator for the plaintiffs, Mr. F. Smith, both of Dudley, for the defendant, and Mr. Rupert Kettle, of Wolverhampton, on May 4, and the second hearing took place on the 30th of that month, also in Wolverhampton. The question chiefly in dispute was the interpretation of an old lease, in which the term "fine slack" occurred, and including which four divisions of coal were recognised in the thick coal and heathen seams—viz., large coal, lumps, slack, and fine slack, the royalty being 9d. on the first three, and 2d. on slack. For the defendant it was contended that there was no such thing as fine slack in the thick coal, and that the coal which they sold as slack, and upon which they paid a royalty of 2d., was all screened in the manner usually adopted throughout this district. For the plaintiffs, however, it was maintained that inasmuch as fine slack was mentioned in the lease, the coal which Mr. Whitehouse sold for slack was sufficiently screened, and that it contained a portion of the size of coal for which a royalty of 9d. ought to have been paid. It will be remembered that at the close of the first sitting the arbitrators and the umpire determined to go themselves to the Tivdale Colliery and ascertain the size of the coal which the defendants were sending away from their pit as slack. On Friday last, Mr. Job Taylor, a mine agent and mine proprietor, deposed that in his opinion one of the boats of slack which the arbitrators and the umpire saw loaded in the canal ready to be taken away contained some coal of the size larger than that which would be denominated slack. The proportion of this large coal would be about three tons to a boat load. With this evidence the arbitrators and the umpire expressed their full concurrence, and suggested whether it was necessary to call any more evidence about this point. In re-examination, Mr. Taylor admitted that a portion of the three tons might have got in accidentally, and that another portion was merely "bat," used in the loading of the skips with slack. Mr. Mottram reminded the Court of his previous argument relative to the lease, that the one isolated mention of fine slack could not mean that 9d. a ton should be paid upon that size coal which the plaintiffs had referred to as rough slack, because, amongst other reasons, this de-

scription was at the time the dead was drawn selling at 2s. 6d. a ton. Witnesses, it should be added, had shown that, excepting in the brooch, the slack was comparatively worthless about the middle, and that it was often tipped down the bank. After Mr. Jos. Davis had generally agreed with M. Job Taylor, the conference, with a view to arrangement, commenced. It was ultimately determined that the term fine slack should no further apply, and that the defendants should pay a royalty of 9d. each upon coal and jumps, and 4d. upon slack. The arbitrators were left to apportion the costs of the arbitration, and also to decide as to the damaged land.

REPORT FROM DERBYSHIRE, YORKSHIRE, AND LANCASHIRE.

JUNE 23.—The Iron Trade continues to manifest symptoms of a further improvement, and all houses are well supplied with orders. The advices from the Continent are also of a generally favourable character; and these, coupled with demands for home requirements, clearly indicate a good trade, not only at the present time, but for the whole of the summer season. There is the greatest activity prevalent in the houses engaged in the manufacture of machinery for exportation, and no perceptible abatement is yet observed in the armour-plate trade, the houses engaged in its manufacture being very fully employed. We have also a very good enquiry for rails, and, indeed, for all iron associated with railways. This department of the iron manufacture is extensively carried on at Sheffield; and that town has acquired a reputation for the manufacture of railway-springs which has given to it a pre-eminence, the effect of which has been to draw almost the whole of the railway-spring trade to the place. The houses in Rotherham are well employed, considering the critical state of the building trade; and the wonder is that, amongst so many strikes and other hindrances to the progress of trade, so much business can be done. In stove-grates and other ironwork connected with building, Rotherham enjoys a great reputation, and the works have of late largely increased.

The Coal Trade continues exceedingly good, considering the season, and the trade generally is very firm. We have to notice a very decided improvement in the cotton and woollen trades, and the result is that a greater manufacturing consumption of coals is now being experienced. The lock-out in South Yorkshire is still likely to be of long continuance, and the supplies which have, consequently, to be drawn from other counties tend to keep up a continued good demand. The hard coal of Derbyshire is in great request, and as it has been much approved for locomotive steam purposes, the enquiry for it will, consequently, increase rather than diminish.

The long-pending dispute between the Mill Dam and the Great Hucklow Companies is now at an end, Mr. Petherick, the eminent engineer, selected, having given in his award. In regard to the cross actions, the Mill Dam Company get the right to the swallow which was in dispute; and the effect of his decision has been to put both parties at rest, and to place the Mill Dam Mine in a better position, by diverting the course of the surface water, which until lately has flowed into the mine, and in wet seasons flooded it.

The local stock and share markets have been very active during the week—there is now a better feeling manifested to invest in mining stock.

The pretty vale of the Derwent is threatened with a complete revolution, owing to the discovery of ironstone. The stone was found, by accident, about two years ago at Kirkham and at Castle Howard, about four miles from Malton, and was then partially wrought, to ascertain its quality. The royalty has now been purchased, and the works on both sides the valley are to be prosecuted vigorously. It is said a bridge over the Derwent is to be erected, so as to reach the Malton Railway from the south side, and that blast-furnaces are also to be built.

The applications for Letters Patent include—Mr. Peter Spence, of Smedley New Hall, and Mr. Henry Davis Pochin, of Broughton Old Hall, for an improvement in smelting copper ore; Mr. Wm. Whitley, of Leekwood, near Huddersfield, machine-maker, and George Hartling, of the same place, for improvements in self-acting mules, horses, and billets for spinning woolen and other fibrous substances; Messrs. John Cresswell Brentnall and Robert Edge, of Halliwell, for improvement in machinery for preparing, spinning, and doubling cotton and other fibrous substances; Mr. John Johnson, of Derby, ironfounder, for improvements in stoves and stove grates.

REPORT FROM MONMOUTH AND SOUTH WALES.

JUNE 23.—Since my last report a better feeling has prevailed in the Iron Trade, owing chiefly, perhaps, to the reduction in the Bank rate of discount. If, at the expiration of the 60 days, the old tariff be resumed in the Federal States, there is no doubt that a large amount of activity will be witnessed in the Iron Trade during the coming months—that is provided the peace of Europe is preserved, which seems rather a doubtful matter at present. The Coal Trade, both house and steam, evinces its usual vitality, steam being in good request, and the house coal proprietors are well supplied with orders. Coke commands rather an indifferent sale just now. The Tin-plate Trade has not improved, and, as stated in previous reports, many of the makers are working out their orders. While the trade is in this state new works and extensions are being carried out with spirit, and many are astonished such enterprise should be shown when tin-plates are, to a great extent, a drug in the market. But they forget that works can be built at a less cost now than when the trade is brisk; and capitalists, without doubt, foresee that when once peace is established in America the tin-plate trade will have years of prosperity before it.

A new coal-washing machine has been successfully applied at the Brymbo Collieries, near Wrexham; it is the invention of Mr. Isaac Francis, of Coed Porth. The apparatus is a simple drain, inclined, and fitted with a sluice valve at the lower end. The stream of water may be supplied in any convenient manner. The coal to be purified is thrown into the top of the drain, and by the action of the water forced or floated over the upper edge of the sluice valve, the valve retaining the pyrites or other heavy impurities, which are from time to time removed. The apparatus is, of course, capable of some slight modification in detail.

The railway bills connected with the district have been, so far, unusually successful. The Pembroke and Tenby extension to Whitland has passed the Commons; also the Carmarthenshire and the Swansea Vale and Neath and Brecon Junction. The Whitland extension of the Pembroke and Tenby will give railway facilities to the Regelly iron and coal fields, and the Carmarthenshire will open up an important coal and ironstone district. The Swansea Vale and Neath and Brecon Junction is another step towards securing a more direct route from Swansea, Llanelly, Neath, and the surrounding localities, to Birkenhead, Liverpool, Manchester, &c., and the new line will be of great advantage to the tin-plate proprietors and the iron and coalmasters. All these lines are on the narrow gauge, and it is quite clear that before many years are over the Great Western even will have to lay down the narrow gauge, or else their South Wales line will become quite isolated for mineral traffic.

It appears that throughout the action between the *Alabama* and the *Kearsage*, the *Deerhound* kept about a mile to windward of the combatants, and was enabled to witness the whole of it. The *Kearsage* was burning Newcastle coals and the *Alabama* Welsh coals, the difference in the smoke (the North Country yielding so much more) enabling the movements of each ship to be distinctly traced.

The *Pembroke* Telegraph states that the parties in treaty for the purchase of Messrs. Powell's steam-coal collieries, are Mr. R. Potter, Chairman of the Great Western Railway Company, Mr. Brassey, Mr. Rolt, M.P., and Mr. Elliot, of the firm of Glass and Elliot, and it is the intention of the new proprietors to ship as much as possible of the coal at Milford Haven. This, if correct, is rather ominous news for Cardiff, where nearly all the produce of the collieries is now shipped.

The Blaenavon Iron Company have accepted contracts for the building of 100 workmen's cottages, in order to provide sufficient house accommodation for the thousands that are employed at the works. The plans indicate that the health and convenience of the workmen have been studied, and the new cottages are expected to be quite a pattern for our hill towns.

The strike at the Neath Abbey Coal Company's Works has led to much ill-feeling between the workmen, and two cases of intimidation and assault were brought before the Neath magistrates, on Friday. The first case was that of Wm. Jones, who was charged with intimidating Richard Thomas, bankman. The defendant told Thomas that his life would be in danger if he continued to work. Jones was committed for two months with hard labour, and the magistrates expressed a hope that the punishment would be a warning to others. Thomas Lloyd and David Jones were charged with threatening and assaulting Evan George, bankman. The defendants met complainant, and struck him several times because he went to work for the Neath Abbey Coal Company. The magistrates, following the course adopted in the last case, committed the defendants for two months with hard labour.

The Merthyr magistrates have committed a baller named Lewis Price for one week with hard labour for leaving his furnace at the Penydarren Works without anyone in charge of it, thereby causing the iron to crystallise. Mr. Davies, one of the partners, said if the iron had been sent away it would have caused serious damage to its reputation.

The whole of the forces at the Melynyrdan Tin-Plate Works are now in full operation, and a large number of hands are employed. The opening of this, and several other works, has imparted quite a new life to the trade of the neighbourhood.

Among the latest foreign arrivals at Swansea are the *Thomas*, from Cherbourg, with 177 tons of iron ore, for the Governor and Company of Copper Miners in England; *Caldera*, from Caldera, with 685 tons of copper ore, for Messrs. H. Bath and Sons; *Sasanna*, from Cherbourg, with a quantity of iron ore in bulk, weighing 170 tons; *Julia Agathe*, from St. Malo, with 96 tons of zinc ore, for Messrs. Vivian and Sons; *Sains Castle*, from Cuba, with 603 tons of copper ore and 47 tons of copper regulus, for the Coburn Mining Company; *Leander*, from Antwerp, with 120 tons of pig-iron, for Mr. W. H. Forster; *Roscluse*, from Santander, with 320 tons of iron ore, for Mr. Richard Cowell, of Cardiff.

IMPORTANT PROCEEDINGS AGAINST A COLLIERY PROPRIETOR.—On Saturday, at the Newport County Police Court, before the Rev. T. Pope, and Capt. Phillips, R.N., Mr. Thomas William Rhodes, proprietor of the Bisco Collieries, was summoned for that he "did in the year 1861, at the parish of Bisco, in the county of Monmouth, then and there unlawfully, after receiving the copy of an award made by the arbitrator, George Clementson Greenwell, and attested by the Inspector of Coal Mines of the district in which the said collieries are situate, neglect to take proper and active measures for remedying a danger and defect in the ventilation of the said collieries according to the said award, and still continues to neglect to comply with the said award." The proceedings were taken by direction of the Home Office, and Mr. Bradgate, instructed by Mr. Lionel Brough, the Government Inspector of Mines for the district, appeared in support of the information. Neither Mr. Rhodes nor his solicitor, Mr. Fox, attended, but a letter was read from the latter, asking for a further adjournment. Mr. Bradgate objected to this, as he had secured the attendance that day of

Mr. G. C. Greenwell, the arbitrator, at a considerable expense. After some further discussion, the magistrates, to suit Mr. Greenwell's convenience, decided on adjourning the case to Saturday, July 16, the question as to the costs of the day to be then decided.

TRADE OF THE SOUTH WALES PORTS.—The returns of the trade of the South Wales ports during the month of May show that, with the exception of Cardiff, a large increase took place in the shipments. The closing of the West Butts Dock at Cardiff for repairs fully accounts for the slight falling off as compared with the corresponding month. The following are the returns of the coal exported foreign during May, the previous month and the corresponding month:—

| | May, 1864. | April, 1864. | May, 1863. |
|------------------------------------------|--------------|--------------|------------|
| Cardiff | Tons 166,916 | 130,847 | 98,591 |
| Newport | 16,433 | 23,709 | 12,112 |
| Swansea | 44,381 | 47,626 | 36,015 |
| Llanelly | 15,255 | 13,927 | 13,120 |
| The shipment coastwise were as follows:— | | | |
| Cardiff | Tons 73,653 | 76,309 | 76,309 |
| Newport | 57,548 | 47,574 | 47,574 |
| Swansea | 26,427 | 24,251 | 24,251 |
| Llanelly | 25,610 | 26,894 | 26,894 |

The returns for Neath and Briton Ferry appeared in last week's *Mining Journal*.

TREATMENT OF SILVER ORES.

It has long been acknowledged that the Mansfeld Copper Company of Germany have been foremost in their efforts to secure the most efficient processes for the treatment of the ore raised, and highly interesting sketches of the works have from time to time been published in the *Mining Journal*, not the least attractive being that which announced the introduction of Augustin's process of extracting silver, which, however, has now been superseded by the more advanced process of Ziervogel, a brief account of which will not be without utility. The calcination of the ground copper regulus, which is composed principally of sulphides of iron, zinc, copper, and silver, the quantity of the latter, to extract which is the sole object of the process, being extremely small, is perhaps the most difficult part of the work to be accomplished. A double bedded reverberatory furnace is the apparatus used, the conversion of the sulphides into sulphates by oxidation and the subsequent decomposition of the latter by increasing the temperature being the object in view. The sulphate of iron is first decomposed, then the sulphate of zinc, and lastly the sulphate of copper, the sulphate of silver remaining unaltered throughout the operation. In the first place, the ore is charged into the upper bed, which has no fireplace, but is heated by the furnace below. The charge is composed of 500 lbs. of ground copper regulus, 50 lbs. of the richer residues of the desilvering vats (those containing more than 17 grs. per cwt.), 37 lbs. of lixiviated regulus, from former calcinations, 4 lbs. of silver scrapings that have been lixiviated and roasted three times, and 4 lbs. of the lixiviated bed of the furnace. Half the richer residues are first spread evenly over the upper bed, since, being almost pure CuO, they do not readily adhere; upon this half the ground regulus is charged, then the re-calcined regulus and silver scrapings, then the remaining half of the richer residues, and, lastly, the other half of the ground regulus. The charge is regularly stirred for from four to five hours, to prevent the agglomeration of the sulphides, and to expose every portion of the air. After this, 20 lbs. of coarse lignite slack is spread evenly over the charge, the whole being then well mixed by stirring. The lignite is soon completely ignited, and after its flames are extinguished the charge is passed through the communication in the floor on to the under bed, during which operation the dampers of the flues are completely closed. On this lower bed the charge continues to be stirred, or "cooled," for from one and a-half to two hours, without any addition of fuel, to effect the complete oxidation of the ground regulus. After an hour's stirring the charge is turned over, and it is turned again at the end of another hour, when it is a dark red heat. A test sample now taken shows scarcely any traces of iron, but a considerable proportion of copper and silver, while one taken immediately after the charge was brought on the lower bed showed (when dissolved in water with common salt) a greenish colour, without any precipitate of silver. The turning over is effected by heaping up in the middle of the furnace the charge of one-half of the hearth, on which the charge on the other half is then spread out, the heap being afterwards spread over the second half. The sulphates are now partially decomposed by the heat of the furnace being slowly raised to a high temperature, while the charge is kept well stirred. On the completion of the roasting the test sample shows a bright blue colour, and gives a considerable precipitate of chloride of silver. The completely roasted charge is now riddled, from 50 lbs. to 60 lbs. of which remains behind as slag ore. Three men are employed at the lower bed, and two at the upper. The sulphur fumes being very injurious the difficulty of working is increased.

The next object is the formation of the silver precipitate. The lixiviating apparatus consists of a reservoir for receiving the solution, a vessel for heating the water, lixiviating vats, clearing tanks, precipitating vats, and an additional reservoir, with the necessary pumping apparatus, these several vessels being suitably arranged, that the solutions may readily pass from one to the other. The reservoir for receiving the solution is of wood, sheet-copper, or lead, and is separated into two compartments, each having an opening that can be closed up, so that the operation may not be interrupted if a portion of the reservoir require cleaning or repairing. It has a capacity of about 450 cubic feet, and leaden pipes extend from the bottom of it, for the purpose of conveying fresh solution into the lixiviating vats, communicating with each of the latter by a vertical pipe with a tap. The vessel for heating the water has a capacity of from 200 to 250 cubic feet, and is heated by a worm, supplied with steam from the boiler, which has two pipes—one near the bottom, leading to the lixiviating vats, and the other to the reservoir for receiving the solution. The lixiviating vats are nearly circular in form, 26½ in. high, 25½ in. diameter at the bottom, and 27½ in. diameter at the top (including 1½ in. the thickness of the sides). Each vat has a double bottom—the upper one being perforated, and serving as a filter. This perforated filter, which is 19 in. down, is made up of two parts—the under part a perforated wooden disc, 23 in. diameter, exactly fitting into the vat, with ½-in. holes bored 1 in. apart, through both the planks and the cross-pieces that hold them together, and tightly packed with tow; and the upper part of basket-work, with a linen disc covering, 25 in. diameter. There is 2 in. of space from the bottom of this filter to the bottom of the vat, in which space there is a tap at the side. Ten such vats, ranged in a row on the top terrace, are in constant work. The taps discharge themselves into a wooden funnel, which conveys the solution into the settling-tanks. The settling apparatus consists of a rectangular tank, partitioned lengthways into two compartments, held together by an iron framework, which can be tightened from time to time by wedges. An opening along the partition lengthways allows the clear solution to pass, after settling from the back into the front compartment, from which it passes through a tap into the silver-precipitating vats on the second and third terraces. The precipitating vats are arranged similarly to the lixiviating vats, but are smaller: the height is 23 inches, and the greatest diameter is 23 in.; space between the two bottoms, 1½ in. From the top of the vats on the third stage the solution passes directly into those of the fourth, from which the almost desilvered solution passes into the pumping reservoir, out of which it is raised by machinery, to be again passed through the lixiviating vats. In the vats of the third terrace there is scarcely any silver, and beautiful crystals of gypsum are found to form on the pieces of copper and on the sides of the vats. The pumping-reservoir is formed of a wooden tank, placed in a brick cistern; the space between the tank and the cistern being compactly packed up with clay, brick-dust, burnt lime, or gypsum, so as to prevent the escape of the solution. The solution is lifted by a force-pump into the receiving reservoir. If it is too copious, it is passed over fragments of iron, and the copper precipitated, after which it flows off. The ground regulus contains from 72 to 75 per cent. of copper, and from 7 to 8 ozs. of silver in the cwt.; and the silver precipitate (cement silver) has a "finesness" of about 270 grm. The copper in the vats of the third terrace is cleared from the silver precipitate daily, and that in the fourth terrace about once a week.

In carrying out the process of lixiviation the 500 lbs. of ground regulus, well roasted, is introduced, if practicable, whilst still hot into the empty lixiviating vat, and spread carefully over the linen filter, and over this regulus a perforated cover is laid, so that the fluid thrown upon it may be equally distributed. The tap of the vat is now opened, and water heated from 150° to 180° Fahr. is thrown over the covered regulus. After from a quarter to half an hour this hot water is replaced by a desilvered solution of sulphate of copper, heated to a like temperature. As this solution does not contain free sulphuric acid to lixiviate the charge perfectly, ½ lb. of sulphuric acid is added, which changes the difficultly soluble basic sulphate of silver into the neutral sulphate. When, as is usual, 18 charges are lixiviated during 12 hours, the 9 lbs. of sulphuric acid required for this number of charges, being first diluted with two quarts of water, is placed in a vessel over the lixiviating vat, and allowed to pass through a trap, drop by drop, into the vat. This last solution, after being heated to the necessary temperature, is conveyed through the lixiviating vats so long as it shows silver on passing, after which it is allowed to escape. The upper-

most layer of the charge, 1 in. thick, being the least desilvered, is scraped off and roasted again. The lixiviating vat is emptied by a copper shovel, and the residues conveyed to the drying-house. If sufficiently roasted they should not contain more than ½ oz. of silver to 1 cwt. of copper; if they should contain more they must be roasted over again. After the solution has passed through the lixiviating vat, and has desilvered the sulphate of silver, it passes into the settling vessels. Here the particles of copper carried with it are deposited, upon which the solution passes through the opening into the front compartment, from which it flows into the precipitating vat over bars of copper. During the process the solution from all the lixiviating vats becomes mixed, so that in each precipitating vat an almost equal quantity of silver is precipitated. The ground regulus consists principally of oxide of copper, sulphate of silver, and sesquioxide of iron. The sulphate of silver is dissolved, and the copper and iron remain behind. There is also a small quantity of sulphate of copper present, which likewise dissolves. In the precipitating vats a quantity of copper, corresponding to the quantity of silver precipitated, becomes dissolved.

The process concludes with the drying and refining of the silver, the apparatus for which comprises collecting, stamping, or grinding vats, and washing vessels, drying kilns, and a gas-generating reverberatory furnace. The collecting vat is similar to the lixiviating vats; the grinding vat is a wooden mortar with a wooden pestle. The washing vessels are of the same size and form as the precipitating vats, only they have no tap between the two bottoms, but instead a wooden pipe, having a tap at the top, goes up the washing vessel from between the two bottoms, so that the vessel is always full. The drying pans are of strong sheet copper, 19 in. long 12½ in. wide, and 6 in. deep, and stand in an iron stove. The silver precipitate, which is impure from the mixture of gypsum and copper, with a produce of 190 to 200 grm., is washed and purified in earthen pans and wooden tubs until it has a finesness of 268 to 270 grm. It is then refined in a reverberatory furnace, the bed of which is of wood ashes, on which from 12,000 to 20,000 ozs. can be refined at one time. The silver, cast into ingots, has a finesness of from 281 to 282 grm.

UTILISATION OF BLAST-FURNACE GASES.—An improved apparatus and arrangements, whereby the waste gases from blast and other furnaces are purified and rendered fit for use more effectually than by any of the existing methods, has been invented by Mr. John Vaughan, of Middlesbrough-on-Tees. A large metal tank is provided, consisting of two compartments, into one of which the inlet-pipe for the admission of the impure gases from the furnace opens, the outlet-pipe for the exit of the gases after they have been purified being situated at the top of the other compartment. The tank contains a considerable body of water (which is allowed to enter both compartments), and a screw consisting of two metal tubes, bent in a spiral form around an iron bar, is placed obliquely across the tank, the upper end thereof being placed near the inlet-pipe. The screw is caused to revolve by means of a small steam-engine, or by any convenient motive-power. In the upper portion of the compartment into which the outlet-pipe enters is placed a quantity of hay or straw, or other divided or fibrous material, the same being kept constantly damp by the water which enters from the adjoining compartment. Above the hay or straw or other analogous material quicklime or sulphuric acid is so placed that the gases passing through the water enter the tank by the inlet-pipe are impelled through the water by the revolving-screw, and are thus carried through the latter into the next compartment, when they escape into a cool state from the screw they rise through the water, and passing through the hay or straw or other analogous material are freed from all the impurities which they may be internalized, and which are deposited in the hay or straw or other analogous material. The gases are then passed over the quicklime or sulphuric acid, whereby they are deprived of any moisture they may contain. In some cases the hay or straw or other analogous material may be dispensed with, and the gases simply passed over the quicklime or sulphuric acid.

NEW CALORIC ENGINE.—An improved hot-air engine, invented by Mr. Roper, has been successfully applied in the United States; its chief peculiarity is that it does not use upon the piston common air heated, but only the products of combustion. The air to supply oxygen for the combustion of anthracite coal is pumped in, the carbon is burned rapidly and completely under pressure, and the resulting carbonic acid gas and uncombined nitrogen gas from the air are passed from the generator or fire-box to the piston. The piston is in the form of a hollow plunger, so arranged that it is lifted and packed only at the top, where there is the least heat. In this way the common difficulty of lubricating a hot cylinder and piston is obviated. The fire-box is surrounded with fire-brick and soap-stone, which prevents the burning of the iron which forms the body of the cylinder, and also prevents a great radiation of heat into the room or building. The engine is single acting—that is, the power is applied to the piston as it moves in but one direction, during which movement the air is pumped in, and the momentum acquired at the same time by a balance-wheel carries the piston back to its original position. The relative action of the air-pump is such that the machine, while in motion, is kept constantly packed or filled with compressed air. The diameter of the pump is 12 in., that of the piston 16 in., and the difference in the area of the pump and piston, multiplied by the usual pressure, 8 lbs. per square inch, shows that the engine exerts a two-horse power, yet with good fuel and a tolerable fire can do at least three-horse power work with it. It requires about 8 lbs. of coal per hour, and about 20 minutes attention to keep it in working order 10 hours. The machine is very compact, and can be manufactured and sold at a cost of little more than 100l. It can be run at 90 revolutions per minute with advantage, and can be regulated at pleasure to the greatest nicety.

A SIMPLE SAFETY-HOOK.—A safety-hook, which the "Mining and Scientific Press of California" describes as safe, strong, durable, and less liable to get out of order, has recently been invented by Mr. Frazer, of the Fulton Foundry. It is composed of several pieces peculiarly fitted together. The main piece of which the hook is composed is a square bar of iron about 10 in. long, which at the lower end is turned up in the form of a hook, or section of a circle. A piece of iron of the same size, but only 4 or 5 in. long, is attached to the side of this main hook by an iron clasp, which extends around both these pieces, and is so fitted as to allow the latter piece to play up and down readily. The lower part of this latter piece is turned to correspond with the curve of the other part of the hook, and to which it is exactly fitted. It will of its own weight fall down and close the hook. To fasten the hook a piece of iron 2 in. in length is added to the top of the sliding piece, which has a short turn or projection of about ¼ in., which turns in toward the shank of the hook. This piece of iron is attached to the other slide by a spring, which keeps it in its place, and makes it appear almost as if it were a part of the same piece. When the slide is down and the hook closed the projection on this upper piece of iron snaps into a groove cut in the shank of the main piece of the hook, and no jar will unfasten it until it is taken hold of, pulled back, and the whole slide lifted up by hand. Attached to the hook is a chain and swivel, which is in all about 2 feet long, and is designed to connect the hook to the rope, and allow the latter to twist or untwist without turning the bucket which is attached.

THE CLEVELAND IRON TRADE.—There is no change of importance to report in connection with the iron trade of this district. There is a good demand for manufactured iron, and no change in prices. All the furnaces continue in blast, and considering the depression existing in Staffordshire, and also that prices are dropping in Glasgow, the state of things, so far as Cleveland is concerned, may be considered highly satisfactory, and again indicates very distinctly its power of withstanding the effects of any such temporary depression as that under which the iron trade now labors. The works for the most part are stocked with orders, and for particular kinds of manufactured iron some of the firms are unable to book for delivery sooner than the end of 1865. We hear that a Middlesbrough firm, through a pressure of orders, has had to refuse a contract for rails, and that it has passed to a house. Whilst the makers who had furnaces in blast show no disposition whatever to put them out, those who have furnaces building are using as much exertion as they can to get their new furnaces completed, as though they were certain of a good time coming. The first of a new series of furnaces erecting in Cleveland—those of Mr. Samuelson, at Newport—are just being charged, and will probably be in blast in a week, or at the furthest a fortnight, from this time. Those furnaces have been laid out and completed in such a manner that they cannot fail to meet the approval of all interested in the trade who have not hitherto seen them. Each furnace is capable of turning out double the quantity of metal that the furnaces built by Mr. Samuelson at South-dale, and recently sold by him, were able to produce. In a little time we shall have to notice the completion of other furnaces now in course of erection, and will merely observe that, great as is the increase in size of Mr. Samuelson's new over his old furnaces, those now building at Port Clarence and other places are still larger. There is a rumor of the amalgamation of the Ferry-hill furnaces with the Rosedale ironstone mines—*Darlington and Stockton Times*.

STRIKE AT HUNWICK COLLIERY.—Owing to some real or supposed oppression on the part of the masters of this colliery, the workmen have "turned out," and issued a notice (addressed to their fellow-labourers in Northumberland and Durham), in which they expressed themselves justified in relating the oppression, and hoping that other miners will not attempt to undermine them whilst struggling for their rights and privileges. The principal complaint, they allege, is that one part of the colliery being entirely "laid in," the whole of the men had been compelled to proceed into the other part of the pit and work double—four men in one bord; which, as is well-known to all experienced miners, is a great inconvenience. This, they would have been perfectly willing to comply with, however, if the masters would not have paid them reasonably for so doing; but as they refused to do so, and would not remove their grievances, they abandoned the pit entirely. The men also allege that in the "broken" the Davy lamp will not burn for want of air, thus rendering it impossible for the men to keep their coals clear from stones; while the crowding entirely prevents them from earning a good livelihood. The working seam is considered a dirty one (stony), and consequently, as the men have not sufficient light to detect the rubbish, a great many tubs are necessarily confiscated.—*Durham Advertiser*.

ARTIFICIAL GALENA.—M. Marigny has been enabled to produce galena artificially, in the following manner:—A mixture is made of 300 grammes of litharge, 60 grammes of pyrites, and 5 or 6 grammes of starch, and is then placed in an earthen crucible, covered over with borax, and exposed for about half-an-hour to a very elevated temperature. When the crucible is withdrawn from the fire, and allowed to cool slowly, large and brilliant facettes of galena are produced.

FATAL BOILER EXPLOSION NEAR WAKEFIELD.—On Saturday a boiler explosion occurred at Messrs. Pope and Baines's colliery at Sharlston, near Wakefield. The boiler, which was of 40-horse power, was risen in two, and one end was projected about 140 yards to the east, and the other about 180 yards to the west. The locomotive was thrown down, the boiler-shed and engine-house were demolished, and damage was done to the engine. Two other boilers, set on either side of the boiler that exploded, were lifted from their seats. After the explosion a boy, aged eleven, the son of Richard Dickinson, of Wakefield, a mason employed at the colliery, was picked out of a pool of boiling water, he was killed to death. John Noble, one of the engine tenders, was taken up at a distance of several yards, much scalded, and with his left shoulder and right leg near

stated. The other tender, Clump, was found lying on a heap of refuse severely scalded. Several other persons had narrow escapes. Noble's wounds proved fatal in the course of a few hours.

COAL MARKET.—On Monday, the market was fully supplied with all descriptions of coal, from the arrival of 99 fresh ships, and an active business was transacted at last Friday's currency. Best house coal, 16s. 9d. to 17s. 6d.; seconds, 15s. 3d. to 16s. 3d.; Hartley's, 15s. to 16s.; manufacturers', 13s. 6d. to 15s. 6d. per ton.—On Wednesday, 63 ships arrived, and there continued a steady business in all descriptions of coal at last prices.—On Friday, 30 ships arrived. The market for household coal was firm, and prices generally quote an advance of 3d. per ton. Hartley's was firm, and manufacturers' coals without alteration. Haswell Wallend, 17s. 6d.; Hartlepool Wallend, 17s.; Braddyl's Wallend, 16s. 6d.; Kellie Wallend, 16s.; Hough Hall Wallend, 16s.; Eden Main, 15s. 9d.; Harton Wallend, 15s. 6d.; Framwellgate Wallend, 15s. 3d.; Hastings Hartley, 16s.; Tanfield Moor, 13s. 6d. per ton. Three cargoes unsold; 60 ships at sea.

Colonel W. PATTEN presented a petition from Mr. Clare, the younger, of Liverpool and London, who claimed to be the inventor of the mode of shipbuilding adopted in the construction of the *Warrior*, in which the petitioner prayed "that your honourable House will extend to your petitioner its clemency in furtherance of right, truth, and justice, whereby your petitioner may, at the bar of your honourable House, in truth, divulge the *modus operandi* made use of by the executive of the Admiralty to obtain a verdict at all hazards, under the protection of governmental power, and aided with its influence and patronage."

Meetings of the Patent Law Commissioners were held last week, and also on Monday, at which the Chairman, Lord Stanley, Lord Overstone, Sir W. Erie, Sir W. Page Wood, H. Waddington, Esq., Sir Hugh Cairns, Q.C., W. R. Grove, Esq., Q.C., W. M. Hindmarch, Esq., Q.C., W. E. Forster, Esq., M.P., W. Fairbairn, Esq., were present. The Secretary, Mr. E. Lloyd, was also present.

THE GREAT EASTERN AND GREAT NORTHERN RAILWAYS.—The Great Eastern Railway Company have published a statement in reference to the rejection of the bill for their Northern Junction line, which would have brought them into connection with the Northern coal districts by a route that, they contend, owing to the unparalleled ease of its gradients, would have enabled coal and agricultural and other kinds of produce to have been brought to the eastern side of London on very economical terms. On the part of the landowners and others there was apparently a general concurrence in favour of the bill, and the district proposed to be traversed forms, it is argued, a legitimate junction to that of the Great Eastern. The Great Northern Company, however, have defeated the plan, the judgement of the Committee being, it is said, mainly influenced by the consideration that the new line would carry goods too cheaply, it being the interest of the Great Northern Company not to allow even a traffic that could but indirectly affect them to be carried on upon terms which might not comport with those they desire to maintain for their own more expensive line. In presenting their narrative of the case, the Great Eastern directors submit that it "constitutes one of the most singular chapters to be found in the history of railway legislation."

LIABILITY OF ALLOTTEES.—In *re the New Theatre Company*, 100 shares were applied for verbally, and the deposit required on application paid, upon the promise of the secretary that if the applicant did not get the shares it should be returned to him. The shares were afterwards allotted to him, and his name was entered in a book described as the register of allotment, but no notification of the allotment was made to him. On the company being wound-up it was held by the Master of the Rolls that notice of the allotment was unnecessary, and that the allottee was a contributory. If the company had been successful, they could not have disputed his rights as a shareholder, and his rights and liabilities must be co-extensive.

VOID PATENTS.—In the case of *Foxwell v. Bostock*, the Lord Chancellor decided against the validity of the patent by reason of the insufficiency of the specification. His Lordship held that in the case of a patent for an improved arrangement or new combination of machinery, the specification must describe the improvement, and the novelty of the machine, and in a more specific form than by the general description of the entire machine, it being part of the condition of a patent that the specification shall "particularly describe and ascertain the invention."

TRADE MARKS.—In the appeal case of *Bury v. Bedford*, before the Lords Justices, it was decided that upon the formation of a partnership with a person entitled to a trade mark, such a mark will, in the absence of expressed provisions in relation to it, become an asset of the partnership, for the whole trade is carried into the partnership, and the trade mark is but one element in it. Such a trade mark is, therefore, capable of being assigned by the partnership, and the Court of Chancery will, after an assignment to a purchaser, restrain the firm, or any partner in it, from himself using the mark, and from assigning it to any other person. Trade marks granted by the Cutlers' Company of Sheffield to persons not free of the company are, under the various Acts of Parliament regulating the company, to be regarded as property capable of assignment by the grantees, and the principles enunciated above apply, therefore, to them also.

EXHALL COAL MINING COMPANY (Limited).—The Master of the Rolls has appointed Mr. William Westcott official liquidator of this company. Creditors are requested to send in the particulars of their claim by July 10.

ANGLO-CALIFORNIAN GOLD MINING COMPANY.—Vice-Chancellor Kindersley will, on Wednesday, make a call of 3s. per share on the contributories.

GREAT NORTHERN AND MIDLAND COAL COMPANY.—Mr. Commissioner Goulburn will, at the Court of Bankruptcy, on July 13, make a call equalising 5s. per share on all the contributories.

CONDENSING METALLIC FUMES.—Mr. R. Martyn, of Liverpool, applied for and was refused provisional protection for an improved means of condensing and purifying gases and fumes arising during the treatment of metallic and metallic substances. This is effected by passing them over hydrated oxide of iron or other oxide, whether natural or artificial.

TEMPERING STEEL.—Some improvements in the vessels, or baths, for containing heated metals and fluxes for hardening and tempering steel have been invented by Mr. W. T. Bury, of Sheffield. He proposes to prevent the lead or flux cooling through, by the use of a lining of wrought-iron or other compact metal.

INDURATION OF STONE.—As an improvement upon the present mode of indurating stone, cement, &c., and manufacturing artificial stone, Mr. F. de Wyld, of Tower-hill, proposes to employ a solution of a soluble alkali, in combination with a neutral solution of alumina.

IMPROVED CRADLE.—Mr. Ross, of Gravesend, Campbell's Creek, has just made a decided improvement in the large common puddler's cradle, which, it is expected, will effect a great saving of fire and it is particularly adapted for washing surfaces and tailings. After the stuff has been cradled through the hopper into the slides where the coarse gold and nuggets are deposited, it passes through a fine perforated plate, or second hopper, over an inclined fixed surface, covered with balise, which has two ripples for catching the fine particles of the precious metal. It can be used either with or without quicksilver.—*Castlemaine News.*

EAST CHIVERTON.—Capt. J. Nancarrow, in his report of Wednesday (which reached us too late for insertion in its proper place) says:—"Our summen are getting on favourably with fixing our plunger-lift, and I should say if things go on well we shall be in readiness for sinking in a week or nine days. The end east, on the south side, in the 35 ft. level, is looking promising at this time, and I may say we have every now and then in this end, and if this level continues in the channel of ground we have now we may expect an improvement. The north cross-cut has very much improved for driving since last week. I should say, from the appearance of the ground to-day, the men will be able to drive 3 fathoms while they have been driving 2 fathoms for some months past. Whether we are getting near any lode or not I cannot say, but I should advise by all means to push on this cross-cut with all speed, as there must be two or three lodes not a great distance before this end; and I think a level this depth is a better trial for lodes than one shallow for proving any lode."

MINE ACCIDENTS.—On Tuesday, in Grambler and St. Anby Mine, J. Rice was seriously injured by the premature explosion of a hole whilst tamping.—On Thursday, at East Caradon Mine, John Masters was injured, not seriously, through a similar accident.

The directors of the Rossa Grande Gold Mining Company (Limited) have appointed Capt. Brokenshaw, late chief superintendent at the celebrated mines of Gongo Soco (the property of the Imperial Brazilian Mining Association) as their chief mining engineer, and he, together with a staff of workmen, will proceed to Brazil by the July mail, to take possession of the company's mines.

COPPER MINING AT LAKE SUPERIOR.—The progress of the copper interest within a few years has been astounding. We doubt whether California can exhibit a better record of prosperity than Lake Superior. For example, in two years and nine months the stock of the Quincy had advanced from \$20½ to \$20½; the Fawcett, from \$18 to \$27½; the Franklin, from \$10 to \$20; and the Portage from \$2½ to \$4, or an average advance of over 300 per cent. in that brief period. As is well known, the stock of the Minnesota and the Pittsburgh and Boston are now worth about twenty times their original value. During 1863, the working copper mines of the Lake produced \$6,000,000 worth of metal—the full equal of the capital invested! Facts and figures like these speak for themselves.—*New York Commercial Advertiser*, June 6.

To Directors, Solicitors, Secretaries, &c.

IMPORTANT TO ALL CONNECTED WITH PUBLIC COMPANIES.—Now ready, price 2s. 6d., A HANDY BOOK OF WHAT TO DO AND HOW TO DO IT, IN ORDER TO FORM ANY MERCANTILE, MINING, AND OTHER JOINT-STOCK COMPANIES. Designed as a PRACTICAL GUIDE for Projectors, Promoters, Directors, Shareholders, Creditors, Solicitors, Secretaries, and other officers. By THOMAS TAPING, Esq., of the Middle Temple, Barrister-at-Law. London: Published at the *Mining Journal* office, 26, Fleet-street, E.C., and to be had of all booksellers and newsmen.

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM. STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:—

REFINED METALLIC NICKEL. OXIDE OF COBALT. [WIRE, &c.]
REFINED METALLIC BISMUTH. GERMAN SILVER—IN INGOTS, SHEET
NICKEL AND COBALT ORES PURCHASED.

GOLDENHILL, COBALT, NICKEL, COLOUR, BORAX, AND CHEMICAL WORKS. NEAR STOKE-UPON-TRENT, STAFFORDSHIRE. JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER. Reference.—Professor Miller, King's College, London.

GEORGE HARRISON, Esq., is NOT NOW, AND NEVER HAS BEEN, INTERESTED, as a PARTNER or OTHERWISE, in the FOUNTAINWORKS COMPANY (LIMITED).

For the Board of Directors of the Fountainworks Company (Limited), JOHN MYRTLE, Sec.

COMMISSION—WANTED, TO MEET WITH A GENTLEMAN CALLING ON COLLIERIES IN SOUTH WALES, DERBYSHIRE, &c. One with influence would be liberally treated with.—Address, "A. G.," *Mining Journal* office, 26, Fleet-street, London, E.C.

TO CAPITALISTS.—WANTED, A PARTNER, with about £4000, in a FIRST-CLASS COLLIERY IN NORTH WALES. A colliery proprietor or mining engineer preferred, but not essential.—Address, "W. 15," Post-office, Liverpool.

TO IRON MANUFACTURERS.—A PARTY in GLASGOW, who has an extensive connection, and who could influence a large trade with Clyde shipbuilders, DESIRES A FIRST-CLASS AGENCY for ANGLE and T-IRON, SHIP and BOILER PLATES, and SHEET IRON, or for any of these singly.—Address "M. A. C.," care of Messrs. Anderson and Watt, 64, Buchanan-street, Glasgow.

TO SLATE QUARRY PROPRIETORS.—WANTED, by an energetic young man, of great experience, a SITUATION as QUARRY MANAGER. He is well acquainted with the Welsh quarries, can survey, level, and map, do all kinds of measurement, together with quarry business generally. Can produce satisfactory testimonials, and give satisfactory reasons for leaving his present management. No objection to go out of Wales.—Address, "A. B.," Mr. David Jones, Penrill House, Dinas Mawddwy.

TO INVENTORS AND PATENTEES.—A GENTLEMAN having an extensive connection with manufacturers, merchants, and others, would be GLAD TO UNDERTAKE THE SALE OF INVENTIONS or PATENTED ARTICLES, on commission.—Apply to Mr. RAWLIE, patent office, 14, Clare-street, Bristol. N.B.—Continental and foreign agencies solicited.

AN ENGINEER, whose experience extends from the work-bench to the highest position in the shop, DESIRES IMMEDIATE EMPLOYMENT in any capacity which will enable him to earn a livelihood. Is a good workman, and thoroughly understands his business. The advertiser has written and lectured on steam and the steam-engine.—Address, "K. T.," *Mining Journal* office, 26, Fleet-street, London, E.C.

A GENTLEMAN, who for the last 63 years has been in the DRAWING OFFICE of one of the largest IRON (MANUFACTURING) WORKS in the NORTH OF ENGLAND, is OPEN to an ENGAGEMENT. Good testimonials.—Address, "H. H. W.," *Mining Journal* office, 26, Fleet-street, E.C.

WANTED, for a LARGE COLLIERY in NORTH WALES, a PRACTICAL COLLIER as UNDERGROUND MANAGER, who thoroughly understands ventilation, and who has had experience in fiery mines, is accustomed to sleep measures, and to work coal by long work. He will have to keep the colliery plant.—Apply, stating salary required, to "Coal," Messrs. Pottle and Son, Royal Exchange, London.

MINERAL PROPERTIES (COPPER), SOUTH AUSTRALIA.—The ADVERTISER, who is about returning to the colony, would be HAPPY TO MEET with SOME GENTLEMEN WILLING to PURCHASE, or ADVANCE CAPITAL for the WORKING of, some very VALUABLE NEW DISCOVERIES in this highly productive mineral country.—Address, "A. B.," 55, Albert-street, Regent's Park, N.W.

MR. BAXTER LANGLEY is empowered to TREAT for the SALE of a very VALUABLE MINERAL PROPERTY, immediately adjacent to a large and rapidly increasing population. Mr. Langley, having personally inspected this very rich mineral deposit, can, after minute enquiry and survey, very strongly recommend this opportunity to capitalists and men of active commercial habits, as the value of the land alone will, from the rapid increase of the neighbouring population, greatly exceed the price now asked long before the mineral is exhausted. 50, Lincoln's Inn-fields.

MINING MATERIALS.—FOR SALE, the SPARE MATERIALS at GOONBARROW MINE, near ST. AUUSTELL, viz.:—A NEW 21 in. cylinder STEAM WHIM complete, with 10 ton BOILER; pumps of 12, 10, 8, and 6 in., with plunger and drawing bottoms; 12 in. and smaller wood rods, with hammer and other strapping plates, rod and flange pins, rail iron, pulleys, 2 in. and other flat-rods, horse-whims, and various other useful mining machinery and timber. To be seen on the mine, and to treat for the same apply to Mr. Wm. BROWN, St. Austell. Dated June 21, 1864.

SLATE QUARRY, splendid and approved, TO BE SOLD. For further knowledge, enquire by letter or personally, of D. R. GRIFFITHS, Penrillino, Trefriw, near Conwy.

TO BE SOLD, BY PRIVATE CONTRACT, the LEASE of ONE of the BEST IRON MINES in the county of CORNWALL, of which there are 16 years unexpired, together with MANY HUNDRED TONS of DARK HEMATITE ORES, of superior quality.—For further particulars, and to treat for the same, apply to Mr. JOHN BROWN, Barncoose, Redruth, Cornwall.

FOR SALE, the RIGHT to the PATENT of a VALUABLE IMPROVEMENT in VALVES and BUCKETS for PUMPS, and in VALVES or COCKS for OTHER USES.—For particulars, apply to Mr. W. T. RAWLIE, patent and mining agent, 39, Budge-street, Bristol.

ON SALE, a FIRST-CLASS NEW HORIZONTAL STEAM ENGINE, has 12 in. cylinder, 2 ft. stroke, with strong link motion to valve for reversing. Very suitable for a winding engine. Price, £75. Also, one same size, with governor complete. Price, £75. Other sizes proportionately low.—Apply to ISAAC W. BOUTNOR, Ashton-under-Lyne.

TO BE LET, for a term of 21 years, a VALUABLE MINERAL PROPERTY, situated at the foot of the far-famed Parys Mountain, AMLWCH, ANGLESEY.—For particulars, apply to the proprietor, Mr. Geo. R. HUGHES, Llaethy Mawr; or to Mr. JAMES M. WILLIAMS, Assay Master to the Mona Mine Proprietors. Amlwch, Anglesey, North Wales, June 6, 1864.

FOR SALE, 19½ in. FORCING PUMP, 14 in. LIFTING PUMP, HAND PUMPS, pumping crank, lifting screw, pit chain, and other colliery material.—Apply to Mr. JOHN FARLER, Naislee, near Bristol.

HORIZONTAL ENGINES FOR SALE, at very low prices:—One 12 in. cylinder, 24 in. stroke; one 12 in. cylinder, 36 in. stroke; and two 14 in. cylinders, 24 in. stroke. All ready for delivery, and may be had with or without fly-wheels.—Apply to Messrs. E. PAGE and Co., Laurence Pountney-place, Laurence Pountney-hill, Cannon-street, E.C.

STEATITE, OR SOAPSTONE, WANTED, IN LARGE QUANTITIES.—State price and where delivered, to Mr. R. E. HUNT, mineral broker, David-street, Manchester.

BEST MANGANESE SPIEGELEISEN DELIVERED at ANY PORT of the UNITED KINGDOM. For testimonials, and all information, apply to Wm. BIRD and Co., 2, Lawrence Pountney-hill, London, E.C.

FLUOR-SPAR DELIVERED at MATLOCK STATION at TEN SHILLINGS PER TON.—Apply to Mr. WILLIAM SPERREY, Matlock, Derbyshire.

PENNANT SLATE COMPANY (LIMITED).—Having received so many applications for shares, the Directors have FIXED the DAY of ALLOTMENT on MONDAY, the 11th of July, so that no application can be received later than July 4. H. H. TREASURE, Sec. Offices, Chester-street, Shrewsbury.

POLHIGY MOOR MINE.—BUY the SHARES in the above to ANY NUMBER, at 20s. per share. The reports may be relied on, and a few weeks will see them at £3 per share. East and west lodes will be intersected in the 20 in a very short time. Any information will readily be given by the managing committee, no doubt. PRO BONO PUBLICO. June 24, 1864.

MR. THOMAS CARTHUE, MINING OFFICES, 17A, SISE LANE, BUCKLESBURY, LONDON, E.C. Reliable information respecting mining generally can be obtained by applying as above. Bankers: Roberts, Lubbock, and Co., 15, Lombard-street, London.

MR. BRENTON SYMONS, MINING ENGINEER AND SURVEYOR, can PROCURE MINING SETTS in ANY DISTRICT in CORNWALL or DEVON.—18, Hatton-garden, E.C.

MR. BRENTON SYMONS INSPECTS and REPORTS on ANY MINERAL PROPERTY. In all cases where procurable a plan will accompany his report.—18, Hatton-garden, E.C.

MR. BRENTON SYMONS WILL RETURN TO LONDON on the 27th, and may be consulted as usual, at 18, Hatton Garden, E.C.

Plates, 8vo., cloth, price 10s. 6d., by post 11s.

THE MINERS' MANUAL OF ARITHMETIC AND SURVEYING. By WILLIAM RICKARD, Teacher of Practical Mining in the late Mining School of Cornwall, and Principal of the Engineering Academy, 88, Upper Parliament-street, Liverpool. Truro: Heard and Son.—London: Longman and Co.; the office of the *Mining Journal*, 26, Fleet-street; or the author, of all booksellers.

SAFETY FUSE.—Messrs. WILLIAM BRUNTON and CO., PENHALLIC, POOL, near CAMBORNE, CORNWALL, and BRYMBO, near WREXHAM, MANUFACTURERS of FUSE, of every size and length, as exhibited in the Great Exhibition of 1861, and supplied to the Royal Arsenal at Woolwich, the Arctic Expedition, and every part of the globe. For the convenience of their customers and others in the North, W. BRUNTON and Co. have recently erected a branch manufactory at Brymbo, near Wrexham, where, as at Cornwall, they are at all times PREPARED to EXECUTE UNLIMITED ORDERS for SUPPLYING FUSE upon warrant that it will prove equal to, if not better than any to be procured elsewhere.

India Office.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL, notice is hereby given that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before MONDAY, the 27th instant, to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to supply—
ONE HUNDRED TONS OF CAKE COPPER.
And that the conditions of the said contract may be had on application at the India Store Office, Cannon-row, Westminster, where the proposals are to be left any time before Two o'clock P.M. of the said 27th day of June, 1864, after which hour no tender will be received.
GERALD C. TALBOT, Director-General.
India Office, June 16, 1864.

Tenders for Steam Coal.

SOUTH-EASTERN RAILWAY—CONTRACT FOR HARD STEAM COAL.—The Directors of the South-Eastern Railway Company are PREPARED TO RECEIVE TENDERS for the SUPPLY of TEN THOUSAND TONS of HARD STEAM COAL, suitable for locomotive purposes, to be delivered in trucks on to the company's line.
Tenders to be sent in on or before Wednesday, the 6th July next, endorsed "Tender for Coal," addressed to the undersigned.
S. SMILES, Sec.
London Bridge Terminus, June 23, 1864.

SCHOOL SHIP.—THE THAMES MARINE OFFICERS' TRAINING SHIP "WORCESTER," moored off Erith, is managed by a committee of London shipowners, merchants, and captains.
CHAIRMAN—HENRY GREEN, Esq., Blackwall, E.
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TREASURER—Stephen Cave, Esq., M.P., 35, Wilton-place, S.W.
Respectable boys, from the age of twelve to fifteen, intended for the sea, are received on board, and thoroughly educated for a seafaring life.
Terms of admission, 35 guineas per annum.
Forms and prospectuses can be obtained on application to 19, London-street, E.C.
W. M. BULLIVANT, Hon. Sec.

THE TAVISTOCK IRONWORKS AND STEEL ORDNANCE COMPANY (LIMITED).

The above company, having now taken possession of the well-known and long established business of Messrs. Gill and Co., of Tavistock, engineers, beg to announce that they have commenced operations, and are PREPARED TO ENTER INTO CONTRACTS for the MANUFACTURE and ERECTION of STEAM ENGINES, BOILERS, and MACHINERY of EVERY DESCRIPTION, as well as for SUPPLYING CONTRACTORS, either at home or abroad, with RAILWAY and OTHER PLANT and MATERIAL, and MANUFACTURING promptly to order CAST and HAMMERED IRON of ANY WEIGHT or DESCRIPTION, CHAINS, SHOVELS, EDGE TOOLS, and EVERY VARIETY of IMPLEMENT for MINING, MANUFACTURING, or AGRICULTURAL PURPOSES; and having availed themselves of the services of Mr. T. Charles Gill, who continues the management of the works, are prepared to guarantee the quality of all articles supplied to be fully equal to that which has already secured for Messrs. Gill and Co. so extensive a reputation.

THE COLLIERY ACCIDENTS RELIEF SOCIETY, FOR NORTH STAFFORDSHIRE.

TEMPORARY COMMITTEE.
BURLEIGH, THE CHIEF BAILIFF OF FENTON, THE CHIEF BAILIFF OF HANLEY, THE MAYOR OF LONGTON, THE CHIEF BAILIFF OF NEWCASTLE, THE MAYOR OF STOKE, THE CHIEF BAILIFF OF TUNSTALL, THE CHIEF BAILIFF OF CHILDE SMITH, Esq., COPELAND, W. T., Esq., M.P. (Trustee). HAYWOOD, RICHARD H., Esq. (Trustee). WISE, J. A. SHIPFORD, Esq. (Trustee). WYNNE, THOMAS, Esq., Inspector of Mines.
HEATHCOTE, JOHN EDENSOR, Esq., Representing the North Staffordshire TYNDALL GEORGE, Esq., Coal and Ironmasters' Association.
WRAGGE, FREDERICK, Esq., Honorary Secretary (pro tem.)—R. Horton Wynne, Esq., Brook-street, Stoke-upon-Trent.

The Committee of the Hartley Relief Fund have, from the surplus in their hands, appropriated and paid the sum of 666½ l. to the district of North Staffordshire, to be applied to the purpose of promoting the relief of suffering arising from colliery accidents; and that sum is now invested in 5 per Cent. India Stock, in the joint names of W. T. Cope land, Esq., M.P., R. H. Haywood, Esq., and J. A. Wise, Esq., as trustees. As there is not, in this important mineral district, any permanent provision for the relief of distress occasioned by colliery accidents, except that afforded by the poor-rates, it is proposed to form a North Staffordshire Colliery Accidents' Relief Society. Mr. Child has offered to contribute £500 towards the establishment of such a permanent institution, on condition that at least £1200 be raised in the district, in addition to his donation, and to the sum arising from the surplus of the Hartley Relief Fund.

It is intended that the rules shall be made at the first meeting of the society, but the following sketch is submitted as embodying generally the views of the committee:—
The donors and subscribers to the society shall have the privilege of recommending persons eligible for relief, such privilege to be regulated in proportion to the amount of the donations or subscriptions in a somewhat similar manner to the mode adopted by the North Staffordshire Infirmary.

That colliery accidents shall be held to include accidents at ironstone pits within the district.

That recommendations shall be either positive, after the subscriber has satisfied himself or herself as to the merits of the case, or provisional, subject to enquiry by the society.

That recommendations shall be for a fixed weekly allowance for a fixed number of weeks; or, if considered more desirable, there may be two or more denominations of recommendations, having each a different value.

That the forms of recommendation to which each donor or subscriber is entitled shall be issued to him or her each year, and that such are not used within the year shall lapse to the society, and the value thereof be added to its capital.

That the affairs of the society shall be under the management of a committee, to be appointed by the donors and subscribers; and that there shall be an officer of the society, paid for his services, who shall pay the allowances at places convenient to the recipients; and in the case of provisional recommendations shall make the necessary enquiries, and who shall keep proper books of the society's accounts.

That bodies of workpeople, as well as individuals, shall be eligible as donors or subscribers, in the name or names of some person or persons appointed by them, who shall be entitled, on their behalf, to the same privileges as would be accorded to an individual donor or subscriber of like amount.

It is believed that many benevolent persons, who have not time nor opportunity to personally administer relief to sufferers from colliery accidents, will be glad to avail themselves of the facilities offered by this society for applying their charity to so desirable an object.

It is also believed that colliers will unite to contribute to the society, and to aid their unfortunate fellow-workmen or their families through its instrumentality, in preference to the plan of making a collection for the purpose on the next following pay-day, and handing it over in one sum, a plan which is admitted to be open to many and serious objections.

Many proprietors of collieries in the district afford generous aid to their own workpeople, under circumstances of suffering arising from accidents; but there are still numerous cases not reached, or inadequately aided; and the Government Inspector of Mines, while bearing testimony to the liberality of many employers, earnestly advocates an appeal to the general public for aid, by means of such a society as that now proposed.

Communications may be addressed to the honorary secretary, and donations or subscriptions may be paid to him, or to any of the banks of the district, to the credit of the society. In the event of the amount stipulated by Mr. Child Smith not being raised, contributions will not be called for, or, if paid, will be returned.

COLORADO MINING AGENCY, OF GIBSON AND DELANY. OFFICES,—DENVER AND CENTRAL CITIES, COLORADO; and 4 and 6, PINE STREET, NEW YORK CITY.

INFORMATION GIVEN on all COLORADO MINING PROPERTY, EXAMINED, and REPORTED UPON.

FULLY DEVELOPED MINES FOR SALE. MINING PROPERTY BOUGHT, SOLD, or TAKEN ON COMMISSION.

Stockholders and other parties having interests in Colorado mining property can at all times obtain confidential and reliable information to latest dates, as to the value of their investments.

CAPT. C. WILLIAMS has FOR SALE FIFTY SHARES in the HAVAN MINE at 70s. per share, and SIXTY SHARES in the CWM-SYMOLOG UNITED, at 40s. per share, both free of commission. Mr. WILLIAMS has also a FIRST RATE LEAD and COPPER MINE TO DISPOSE OF, full particulars of which will be given upon application being made.

Tyn-y-Wern, Taliesin, Shrewsbury, June 8, 1864.

CARDIGANSHPHIRE MINING OFFICES.

MESSRS. WILLIAMS, BRAY, AND CO. beg to inform their mining friends and the public generally that, in consequence of the numerous applications and requests they have received, they now UNDERTAKE the INSPECTING and REPORTING on MINES.

The several members of the firm having had many years' experience in mining in all its branches is the best guarantee of their ability in such matters; and they trust that, by carefully examining the mines they visit, and faithfully reporting thereon, and by constantly watching the progress of both old and new undertakings, they will be able to supply a want that has been greatly felt in the district, and give every information and advice that may be required.

OFFICES, 44, MARINE TERRACE, ABERYSTWTH.

MINING OFFICES, MANCHESTER. MESSRS. HARVEY AND CO., MINING ENGINEERS, AGENTS, and SHAREDEALERS, CLARENCE CHAMBERS, MANCHESTER, are at all times in a position to deal in all the market Dividend and Progressive Mine shares, and also to advise on all mining matters, being practically acquainted with the business, and having a daily communication from the mining districts of Devon and Cornwall.

Messrs. HARVEY and Co. publish a monthly "Mining Circular," containing a valuable summary of mining information. Forwarded gratis on application. The Circular for May contains special reports on North Hasset and North Trekerby.

BRITISH AND FOREIGN STOCK, SHARE, AND MINING OFFICES, No. 2, WINCHESTER BUILDINGS, GREAT WINCHESTER STREET, LONDON, E.C.

Messrs. FULLER and Co. continue to BUY and SELL EVERY DESCRIPTION of SHARES in BANKS, CANALS, MINES, RAILWAYS, and GOVERNMENT STOCK, either for money or account. Stock Exchange business effected upon the usual commission.

Telegraphic messages promptly attended to, and every information supplied, either personally or by letter. Office hours, from Ten to Four o'clock.

Bankers: The Metropolitan and Provincial Cornhill.

THE GREAT NORTH VOR TIN AND COPPER MINING COMPANY (LIMITED).
Incorporated under the Joint-Stock Companies Act, 1862, by which the liability of shareholders is strictly limited to the amount of their respective subscriptions.
Capital £25,000, in 5000 shares of £5 each.
Deposit £1 per share on application, and £1 on allotment.
DIRECTORS.
JOSEPH ATWELL, Esq., 72, Bedford-gardens, Kensington (Chairman of the Deal and Water Pier Company).
JAMES BARKS, Esq., Broxbourne (Director of the Tamar and Callington Railway).
JAMES G. FELLOWS, Esq., Surbiton, Surrey (Director of the Central Gyrils Mining).
JOSEPH C. W. HORNE, Esq., 29, Guildford-street, Russell-square. [Company].
General MASON, South Parade, Trafalgar-square, Brighton.
JOSEPH NIGHTINGALE, Esq., 150, Leadenhall-street, E.C.
BANKERS—The Alliance Bank (Limited), Lombard-street.
BROKERS—Messrs. Aarls and Co., 41, Lombard-street.
SECRETARY—G. Bedford, Esq.
OFFICES—11, St. BENET'S-PLACE, GRACECHURCH STREET.

ABRIDGED PROSPECTUS.

This company is formed for purchasing and working the mines formerly known as the Leadore and Consols and Polgase, with several contiguous mines, now all included under the name of Great North Vor. The property will be held under a lease of 21 years, at the rate of about 1-18th, and is located in the midst of the Breage and Crowan Mines, which in the aggregate have made returns of about 2,000,000 lbs. of tin, in the event of no allotment being made, all deposits will be returned in full.

STATEMENT OF PROFITS REALIZED BY THE MINES SURROUNDING THE PROPERTY OF THE GREAT NORTH VOR COMPANY.

| | | | |
|-----------------------------|----------|-------------------------------|----------|
| East Treasury—First working | £ 90,000 | Godolphin | £116,000 |
| Second working | 50,000 | Julia | 300,000 |
| Crowder | 73,000 | Strawberry | 120,000 |
| West Treasury | 6,000 | Reliance—Last working | 10,000 |
| Wheat Sarah | 85,000 | Wheat Jane | 30,000 |
| Binner Downs, above the 40 | 80,000 | Tremayne—Present working | 2,000 |
| Abraham—Second working | 250,000 | North Binner Downs | 25,000 |
| First working | 20,000 | Great Wheel Vor—Last working | 500,000 |
| Carrie | 12,000 | Wheat Metal | 60,000 |
| Wheat Mary | 12,000 | Great Fortune—Present working | 12,000 |
| Wheat Mount | 50,000 | | |

Full prospectuses, with forms of application for shares, can be obtained from the brokers, Messrs. Aarls and Co., 41, Lombard-street; or the secretary, at the offices of the company, where specimens from the mines, and sections of the property, may be seen.

THE GREAT NORTH VOR TIN AND COPPER MINING COMPANY (LIMITED).
Notice is hereby given that, in consequence of the number of shares in this company that have been applied for, the directors have appointed TUESDAY, the 28th day of June, as the LAST DAY for RECEIVING APPLICATIONS.
By order, G. BEDFORD, Sec.
11, St. Benet's-Place, Gracechurch-street.

EAST WHEEL FLORENCE, CALLINGTON, CORNWALL.
At a MEETING of the adventurers, held at the residence of Mr. Henry Trefusis Smith, Morice-square, Devonport, on the 30th May, 1864, it was resolved:—"That the mine be divided into 6000 shares, of which 4000 at least be considered the property of the original adventurers, and that the remaining portion be offered to the public at £2 per share."

The adventurers have great confidence in calling the attention of those interested in mining operations to the accompanying reports, which they have received from practical men, who have been requested to state their opinions as to the prospects which East Wheel Florence offers to those who may feel disposed to take a share in opening up so valuable a district.

REPORTS.

March 10, 1864.—By your request I have inspected the above mine, and beg to hand you my report thereon. I presume there is no necessity for me to enter into detail respecting the length and breadth of this mineral property, but content myself by saying that this site is situated in the parish of Callington, in a good mining district, and is very extensive, especially in the direction of the lode which have been discovered traversing the site, being upwards of 500 fms. in length on the course of them. There has been already two large and very promising lodes and there is no doubt there are several others within the site discovered—viz., the Wheel Tonkin and the Wheel Florence lodes, only one of which (the Wheel Florence lode) has yet been wrought on by the present company. On this lode a shaft has been sunk to a depth of 12 fms. from the surface, on a lode varying in size from 5 to 6 ft. wide, with an underlie south of about 1 ft. in a fathom: this lode is composed of iron pyrites (mudic), quartz, and black and yellow copper ore, of excellent quality, producing the latter from 2 to 4 tons per fm. in many places in the course of sinking the shaft, which is confirmed by the piles of ore now on the surface and in course of dressing. The lode now standing in the end of the shaft will, no doubt, pay for taking away, and leave a good profit to the adventurers. To the south of the Wheel Florence lode an adit was commenced and driven in a northerly direction about 40 fms. (and intersected the before-named lode about 15 fms. west of the shaft), through a beautiful stratum of clay-slate, and intersecting in its course several branches of quartz, containing portions of yellow copper ore, dipping north towards the lode, and will, no doubt, prove good auxiliaries to it in depth. From this point of intersection of the lode by the adit a level has been driven east by the side of the lode, and communicated with the shaft; the lode has been cut into in several places, and shown unmistakable indications of there being found a good productive lode when taken down, especially near the shaft, which the men have now commenced doing. About 7 or 8 fathoms north of the Wheel Florence lode is the Wheel Tonkin lode, which is also a large and promising lode where seen at the surface, and can be intersected by the continuation of the adit level further north, at a comparatively small expense, the ground being easy for driving. When this is accomplished you will be better able to judge both of the quality and underlie of the lode, and whether the lodes are converging towards each other in depth or not, and thereby ascertain if the present shaft should be converted into an engine-shaft, for the development of the two lodes, or if a shaft should be placed in another position for that purpose. I would also recommend the driving east of a level on the course of the Wheel Florence lode, in the adit level, for the further development of the lode, and the taking off the surface water at that level, besides the opening up some ore ground in that direction. I would also advise the sinking of your present shaft as deep as practicable for water, as a trial shaft, on the lode; and if, in the course of deepening it, it is found to continue productive, and also to be in its proper place, then at once erect the necessary machinery, and push it down as quick as possible; for from the present appearance of the lodes, where already wrought on, there can be scarce a doubt but that at a reasonable depth you will have a good and lasting dividend-paying mine.

N. SECOMBE.

Cornwall, May 10, 1864.—In pursuance of your request, I have carefully inspected the above mine, and beg to hand you my report thereon. The mine is situated in the rising ground to the north-east, and close to the town of Callington: it is extensive, being upwards of 500 fathoms in length on the course of the lodes, and about 400 fms. in breadth. It includes Wheel Tonkin in the eastern ground, and adjoins the well-known Redmor Mines to the west. The stratum is clay-slate, and no great distance from the granite to the north. Three known lodes traverse the site for its entire length, two of which have been intersected 12 fms. below the surface, by a cross-cut adit of 40 fms., and about 220 fms. from the western boundary. Knowledge of the lode is most southerly yet seen; it has been opened on by level 15 fms. east of the adit cross-cut. In this driving the lode has varied from 2 to 3 feet in width, with an underlie of 15 in. per fm. south: it is composed of quartz, chlorite, mudic, and at intervals bunches of rich yellow copper ore. Knowledge of the lode is sunk 12 fms. below the surface, and communicated with the adit 2 fms. behind the end; the lode in this shaft is from 2 to 3 ft. wide, much of the same character as in the level, also yielding bunches of copper ore. About 4 fms. west of Knowledge's shaft the back of the level is working by two men, at 10 in. in tribute. Smith's lode is intersected 5½ fms. north of Knowledge's, and developed by level 9 fms. west of the adit cross-cut. In this driving the lode is 4 ft. wide, and underlies 1 ft. per fm. south: it is composed of mudic, chlorite, and prinn, with occasional stones of yellow copper ore; this lode carries a good flocking on the south side, is well defined, and of a very promising character. The rising ground which these lodes traverse ranges east, consequently they will take back in that direction, and in the eastern ground 20 fms. or backs or more may be obtained above the adit level. They vary a few degrees in their bearings, and will form a junction about 50 fms. to the east of Knowledge's shaft. This is a very important point to see, and I would recommend a vigorous prosecution of the adit on each of these lodes in that direction, while they continue so strong and promising; but, should either of the lodes fall off in appearance, I would only drive the adit on the most promising to the junction, which is more central, and probably the best position for an engine-shaft. At all events, the exploration of these lodes at the adit will clearly define the subsequent course you ought to pursue. In conclusion, looking at the small extent of ground opened on these lodes, and the quantity and quality of ore sampled (20 tons), I am inclined to think that pretty much copper ore will be raised above the adit level, and I beg to add that I have scarcely ever seen a set which offers greater inducements for the investment of capital.

WILLIAM PASCOE.

East Wheel Russell, May 19, 1864.—I have this day carefully inspected the above-named mine, and beg to hand you my report thereon. The set is situated on the south-west side of Kit Hill, in the parish of Callington, in the county of Cornwall, and is upwards of 500 fms. east and west on the line of the lodes, and about 400 fms. from north to south, and the stratum in which the lodes are embedded is a light blue clay-slate. Close to the granite range an adit level has been driven north about 40 fms., and intersected two lodes, which is about 200 fms. east of the western boundary. The south lode (Knowledge's) being opened on by a level about 17 fms. east, varying in size from 1½ to 4 feet in width, composed of capel, quartz, prinn, mudic, black oxide, grey and yellow sulphate of copper ore, and underlying south about 1 ft. in a fathom, and the present end (east) presenting a promising appearance. From the present bearing of the lode, an improvement may be fairly expected. When this level is extended east about 70 or 80 fms. no doubt a junction of the lodes will take place. The lode has been opened on to the west of the adit about 3 fms. in the bottom of the level producing a little rich yellow copper ore in places, the lode in the end being small; but as the hill drops fast in this direction there cannot be much chance of an improvement in this direction at so shallow a depth; therefore, I would recommend the suspension of the driving in that direction before sinking deeper. Knowledge's shaft has been sunk 12 fms. below surface, and communicated to the adit level, and also sunk a few feet below the adit. The lode in the shaft from surface to adit varies in size from 4 to 4½ ft. wide, of a strong character, and produces copper ore in places. There is a tribute pitch working in the back of the lode, by two men, at 10s. in 12 ft. The adit level has been driven north 3 or 4 fms. from the south lode, and intersected Smith's lode, which has been opened on about 7 fms.; the lode in the end is from 3½ to 4 ft. wide, composed of capel, quartz, prinn, mudic, and copper ore, and is decidedly of a healthy character; the stratum in which the lodes are embedded is soft clay-slate, and the underlie south about 1½ ft. in a fathom. The south lode underlying less, there is every reason to believe that it will extend eastward on this north lode, I am of opinion that tin will be found on the back. By present appearances, these lodes will produce large quantities of copper ore at a shallow depth. It is well known the property is in good mineral-bearing strata, being close on the junction of the granite and killas, and the mines in the north produced large quantities of copper ore.

JOHN GOLDSWORTHY.

Applications for shares to be made on or before the 30th June, to the purser, Mr. R. E. KNOWLES, Morice-square, Devonport.

MONEY.—CONTRACTORS AND OTHERS can be accommodated with LOANS, DISCOUNTS, &c.—Apply to Messrs. WILKINSON and Co., monetary negotiators and arbitrators, &c., 25, Birchin-lane, Cornhill, London, E.C.

NICHOLLS, WILLIAMS, AND CO., ENGINEERS,
BEDFORD IRONWORKS, TAVISTOCK.
MANUFACTURERS OF STEAM ENGINES OF EVERY DESCRIPTION, made on the BEST AND NEWEST PRINCIPLES. We beg most especially to call the attention of the public to the manufacture of our BOILERS, which have been tested by most of our leading engineers. PUMP WORK CASTINGS OF EVERY DESCRIPTION, both of brass and iron. HAMMERED IRON AND HEAVY SHAFTS OF ANY SIZE. CHAINS made of the best iron, and warranted. RAILWAY WORK OF EVERY DESCRIPTION.
ALL ORDERS FOR ABROAD RECEIVE THEIR BEST ATTENTION. NICHOLLS, WILLIAMS, AND CO. have had 20 years' experience in supplying machinery to foreign mines, and selecting experienced workmen to erect the same, where required.
Messrs. NICHOLLS, WILLIAMS, AND CO. have always a LARGE STOCK OF SECOND-HAND MINE MATERIALS in stock, and at moderate prices.

MESSRS. W. DERRY AND CO., MINING MATERIAL
MERCHANTS, ST. AUUSTEL, respectfully inform the mining public that they have constantly ON SALE EVERY DESCRIPTION OF MINING PLANT, in PITWORK, DRESSING APPLIANCES, &c., and STEAM ENGINES, as follows:—
ONE 50 in. cylinder PUMPING. ONE 26½ in. ditto ROTARY.
ONE 45 in. ditto ditto TWO 25 in. ditto ditto
ONE 40 in. ditto ditto ONE 20 in. ditto PUMPING.
ONE 30 in. ditto ditto
ONE 10 horse power PORTABLE HIGH PRESSURE ENGINE.
Applications to be addressed as above, or to the engineer of the company, Mr. W. H. GRAY, St. Austell.

RAILWAY CARRIAGE COMPANY (LIMITED),
ESTABLISHED 1847.
OLDBURY WORKS, NEAR BIRMINGHAM.
MANUFACTURERS OF RAILWAY CARRIAGES AND WAGONS, and EVERY DESCRIPTION OF IRONWORK.
Passenger carriages and wagons built, either for cash or for payment over a period of years.
RAILWAY WAGONS FOR HIRE.
CHIEF OFFICES, OLDBURY WORKS, NEAR BIRMINGHAM.
LONDON OFFICES, 6, STOREY'S GATE, GREAT GEORGE STREET, WESTMINSTER.

THE BIRMINGHAM WAGON COMPANY (LIMITED)
is PREPARED TO SUPPLY RAILWAY WAGONS OF EVERY DESCRIPTION, capable of carrying 6, 8, or 10 tons, at annual rentals, or for purchase on deferred payments, on advantageous terms.
EDMUND FOWLER, Sec.
OFFICES, 3, NEWHALL STREET, BIRMINGHAM.

THE BEVERLEY IRON AND WAGON COMPANY (LIMITED).
MANUFACTURERS OF RAILWAY WAGONS, WROUGHT AND CAST IRON CARRIAGE AND WAGON WHEELS, LURRIES, and ROAD WHEELS AND AXLES OF EVERY DESCRIPTION.
PATENT WHEEL MANUFACTORY, BEVERLEY IRONWORKS, BEVERLEY, YORKSHIRE.

COAL CUTTING MACHINERY.
THE WEST ARDLEY COMPANY having, by recently patented improvements, perfected their coal cutting machinery, worked by compressed air, are NOW READY TO MAKE CONTRACTS FOR THE CONSTRUCTION AND USE OF THEIR MACHINES.
The results of twelve months' experience in the working of these machines, by the West Ardsley Company, have proved most satisfactory, their use being found to CHEAPEN THE COST AND IMPROVE THE AVERAGE SIZE OF THE COAL, TO LIGHTEN THE LABOUR, and also TO MODIFY THE SANITARY CONDITION OF THE MINE.
All communications to be made to Messrs. FITZ, DONISTHORPE, and BOWEN, No. 8, Britannia-street, Leeds.

NOTICE.—THE WEST ARDLEY COMPANY, having reason
to believe that their patents are being infringed upon, hereby give notice that they will TAKE LEGAL PROCEEDINGS AGAINST ALL PARTIES who may MAKE FOR SALE, OR USE ANY MACHINERY in the construction of which any such INFRINGEMENT is MADE.

EDWARDS'S PATENT MINERAL ORE AND COAL
WASHING MACHINE.—This is by far the MOST ECONOMICAL, as well as the MOST PERFECT MACHINE MADE. Each machine is capable of washing 25 to 50 tons per diem, according to quality.—Full particulars, testimonials, &c., may be obtained from E. EDWARDS, Esq., C.E., 1, York-buildings, Adelphi, where a working model may be seen.

DANIEL COLLINGE AND SON'S PATENT
SPONGE CLOTHS.
WE HAVE APPOINTED Mr. ELLIS LEVER, of this city, SOLE AGENT for the SALE OF OUR PATENT SPONGE CLOTHS in the MINING DISTRICTS OF GREAT BRITAIN.
DANIEL COLLINGE AND SON, Manchester, March 5, 1864.

I shall be glad to SUPPLY SAMPLES AND PRICES OF DANIEL COLLINGE AND SON'S PATENT SPONGE CLOTHS, which are a VALUABLE SUBSTITUTE for COTTON WASTE in the CLEANING OF ENGINES and MACHINERY.
23, Marsden-square, Manchester. ELLIS LEVER.

Adopted by the Governments of Great Britain, Spain, Denmark, Russia, Brazil, East and West Indies.

EASTON'S PATENT BOILER FLUID,
FOR REMOVING AND PREVENTING INCORUSTATION IN STEAM BOILERS, LAND AND MARINE.
P. S. EASTON AND G. SPRINGFIELD, Patentees and Sole Manufacturers, 37, 38, and 39, WAPPING WALL, LONDON, E., Or of their Agents in the principal towns of Great Britain and the Colonies.

NEW COMBINED TURBINE WINDING, AND PUMPING MACHINERY,
MANUFACTURED BY GEORGE LOWT.
MILLGATE IRONWORKS, NEWARK-UPON-TRENT.

Who respectfully begs to bring the above to the notice of the mining public, as an exceedingly cheap and easy method of applying water-power for the above purposes.
The TURBINE WINDING, AND PUMPING MACHINERY are all fixed complete to one strong cast-iron bed plate, which can be placed in any situation without pit or excavation, and any height not exceeding 33 ft. from bottom of fall, the supply and suction pipe being all that is required to be connected to it, and can be brought in any direction. This combined machine can be easily removed when necessary.
G. Low begs also to state that the TURBINE is the most efficient and the cheapest method of applying water-power for mining purposes.

MANUFACTURER OF WINDING, PUMPING, CRUSHING, STAMPING MACHINERY, WINDING WATER WHEELS.
IMPROVED TURBINE WATER WHEELS CONSTRUCTED EITHER TO WORK VERTICALLY OR HORIZONTALLY, and upon the MOST SCIENTIFIC and EFFECTIVE PRINCIPLE.

G. Low begs to recommend a special class of turbine adapted for extreme high falls (200 to 500 ft.), and consuming small quantity of water. This turbine will work with equal advantage without running at an excessive velocity. Also, MANUFACTURER OF IMPROVED BORING MACHINES FOR DRIVING ADITS.

THE UNITY PATENT SAFETY FUSE COMPANY
SCORRIER, CORNWALL, SOLICIT ORDERS FOR THE DIFFERENT KINDS OF SAFETY FUSE which they are PREPARED TO SUPPLY, OF SUPERIOR QUALITY, and of ANY LENGTH.

CHARLES DAVEY AND CO.,
SAFETY FUSE MANUFACTURERS,
ST. HELEN'S JUNCTION, LANCASHIRE.

CORNISH CRUCIBLE AND BLACK-LEAD POT MAKER,
JOHN JULEFF, FORE STREET, and PEDDAN-DREA, REDRUTH.

ASSAYS AND ANALYSES OF EVERY DESCRIPTION
Conducted by JOHN MITCHELL, F.C.S., M.G.A. (Established 20 years).
Author of "Manual of Practical Assaying," "Metallurgical Papers," &c.
All communications and samples to be addressed (free) to Mr. MITCHELL, care of Mr. CIV. 29, Great St. Helen's, London, E.C.

ASSAYS AND ANALYSES UNDERTAKEN AT MODERATE
CHARGES, by Mr. ARTHUR EVANS, LECTURER ON CHEMISTRY, NORMAL COLLEGE, SWANSEA.—Fares to be directed Mr. A. EVANS, 12, High-street, Swansea.

TO IRON AND COAL MASTERS, MINING AND QUARRY COMPANIES, &c.
IMPROVED BLACK VARNISH.

FOR PREVENTING IRON FROM RUST, AND WOOD FROM DECAY.

ABRILLIANT 'ET BLACK, SUPERIOR TO PAINT
IN APPEARANCE, dries in less time, contains preservative qualities of the best description, and is economical in its use; one gallon, at 1s., is equal to 14 lbs. of paint, which costs 4s. For COLLIERY HEAD GEARING, RAILWAY WAGONS, BOILERS, CASTINGS, CANAL BOATS, &c., it is especially adapted. In casks containing 10, 15, and 20 cwt. each. In quantities of 1 ton and upwards, price £11 per ton.

TURPENTINE SUBSTITUTE.
GLOVER and Co. have now on hand a really splendid painting sample of spirits of turpentine substitute, a pure crystal, not more volatile than the genuine American turpentine, and quite inoffensive to smell. Price, 2s. per gallon, in 30-gallon casks.

PETROLEUM.
This oil gives a pure, white, soft, and brilliant light, easily regulated, and portable. For works or public buildings, where gas is not desirable, the brilliancy and economy of the article are unequalled.

WASTE NO OIL.
STRONG IRON OIL CISTERNS.
Not liable to leak, and which economise space in the stores. From 600 gallons, 48 diameter by 84 in height, price £10 10s., down to 10 gallons, 15 diameter by 21 in height, price 16s., WITH EVERY VARIETY OF SIZE AND PRICE BETWEEN.

STRONG IRON BUCKETS.
2½ galls. .. 4s. 6d. | 3 galls. 5s. 0d. | 3½ galls. .. 5s. 6d. | 4 galls. 6s. 0d.

WAGON GREASE.
GLOVER AND CO., No. 40, MANESTY LANE, LIVERPOOL.

MR. GEORGE HENWOOD, MINING ENGINEER.
LOCHHEAD HOUSE, LOCHWINNOCH, SCOTLAND, OFFERS HIS SERVICES AND ADVICE on mines situated in any part of England, Scotland, Wales, Ireland, and Isle of Man, &c. Mr. Henwood's extensive experience in his peculiar department of mining science is well known, and will be exerted to the utmost for the benefit of his clients.

CLAYTON, SHUTTLEWORTH, AND CO.,
ENGINEERS.
MANUFACTURERS OF PORTABLE AND FIXED STEAM ENGINES, MACHINERY FOR PUMPING, HOISTING, GRINDING, SAWING, &c., ENGINES FOR STEAM CULTIVATION, SELF MOVING ENGINES FOR COMMON ROADS and AGRICULTURAL PURPOSES GENERALLY.
STAMP END WORKS, LINCOLN; and 78, LOMBARD STREET, LONDON.

ALSO AT LOWENGASSE No. 44, LANDSTRASE, VIENNA, and GEGENUEBER DEM BAHNHOF, PESTH.
Descriptive, illustrated, and priced catalogues free per post.
SPECIAL DRAWINGS WHEN REQUIRED.
THE BEST STEAM THRASHING MACHINERY MADE.

ESTABLISHED 1800.

EDGE AND SON,
MANUFACTURERS OF IMPROVED FLAT and ROUND CHAINS AND WIRE ROPES, FOR MINING PURPOSES.
BOUKS, KIBBLES, BOILERS, IRON BLOCKS, and BLOCK CHAINS. RAILWAY COUPLINGS, HORSE TRACES, CRANE CHAINS, LURRIES, and FORGINGS.
MANUFACTORY, COALPORT, SHROPSHIRE.

Prize Medal Awarded Great Exhibition, 1851, for Mining Chains.

Exhibition Medal, 1862.

WEIGHING MACHINERY,
CONSISTING OF PLATFORM WEIGHING MACHINES and HIND'S PATENT RAIL and ROAD WEIGHBRIDGES, overhead TRAVELLING WEIGHING CRANES and CRABS, RAILWAY WEIGHING TURNABLES, &c.
CRANES

Of the WALL, PILLAR, PORTABLE, or TRAVELLING KINDS; and CRABS and WINCHES for STEAM or HAND POWER, &c. Also, TURNABLES, WATER COLUMNS, TANKS, and PUMPING MACHINERY, and GENERAL RAILWAY PLANT, manufactured by

RICHARD KITCHIN, ENGINEER AND IRONFOUNDER,
SCOTLAND BANK IRONWORKS, WARINGTON.

Prize Medal Awarded Great Exhibition, 1851, and International Exhibition, 1862.

PATENT SAFETY FUZE WORKS, TUCKINGMILL,
CORNWALL.—We beg respectfully to inform the public that since the decease of the late Mr. THOMAS DAVEY this firm has consisted of JOHN SOLOMON BICKFORD, GEORGE SMITH, FRANCIS PRYOR, SIMON DAVEY, and WILLIAM BICKFORD SMITH. It is requested that all letters may be addressed, and all cheques and drafts made payable to us, as BICKFORD, SMITH, AND CO.

Gun Cotton Manufactory.

MESSRS. THOMAS PRENTICE AND CO.,
GREAT EASTERN CHEMICAL WORKS, STOWMARKET, SUFFOLK.

This manufactory has been established for the purpose of preparing GUN COTTON, according to the Austrian process, and was opened on the 30th of January last, under the management of Messrs. Thomas Prentice and Co. are now able to SUPPLY GUN COTTON, in its most approved form, either for the purposes of engineering and mining, or for military and submarine explosion, and for the service of artillery, as a substitute for gunpowder.

The advantages of Baron Lenk's GUN COTTON are the following:—
FOR PURPOSES OF ARTILLERY.—The same initial velocity of the projectile can be obtained by a charge of gun cotton one-fourth of the weight of gunpowder. There is no smoke from the explosion of gun cotton; it does not foul the gun, nor heat it to the injurious degree of gunpowder. There is much smaller recoil of the gun. The same initial velocity of projectile is produced, with a shorter length of barrel. In projectiles of the nature of explosive shells it breaks the shell more equally into much more numerous pieces than gunpowder. When used in shells, one-third the weight of gun cotton produces double the explosive force of gunpowder.

FOR CIVIL ENGINEERING AND MINING.—In driving tunnels through hard rock a charge of gun cotton given size exerts double the explosive force of gunpowder, thus a smaller number of holes is necessary. It may be so used as, in its explosion, to reduce the rock to much smaller pieces than gunpowder, and so facilitate its removal. As gun cotton produces no smoke, the work can proceed much more rapidly, and with less injury to the health of the miners. In working coal mines the advantages of bringing down much larger quantities of material with a given charge, and the absence of smoke in the explosion, enable a much greater quantity of work to be done in a given time at a given cost. The weight of gun cotton required to produce a given effect in mining is only one-sixth part of the weight of gunpowder. In blasting rock under water the wider range and greater force of a given charge is a great element in cheapening the cost of submarine work. The peculiar local action of gun cotton, to which the effects of gunpowder show no analogy, enables the engineer to destroy and remove submarine stones and rocks, without the preliminary delay and expense of boring chambers for the charge.

FOR MILITARY ENGINEERING.—The facility of transport is increased, the weight of gun cotton being one-sixth that of gunpowder. The peculiar local action of gun cotton facilitates the destruction of bridges and palisades, and every obstacle. For submarine explosion, gun cotton has the advantage of a much wider range of destructive power than gunpowder. For the same purpose gun cotton, from its lightness, has the advantage of keeping afloat the water-tight case in which it is contained, while gunpowder sinks it to the bottom.

FOR NAVAL WARFARE.—In the batteries of ships, between decks, and in casemated forts, the absence of smoke facilitates continuous rapid firing. The absence of fouling and of heating are equally advantageous for naval as for military artillery.

GENERAL ADVANTAGES.—Time, damp, and exposure do not alter the qualities of the patent gun cotton. It has already been preserved 10 years without injury or decay. It can be transported through fire without danger, simply by being wetted, and when dried in the open air it becomes as good as before. In the case of a ship, or a fortress, or a city being on fire, this quality may be of the greatest value. It is much safer than gunpowder, owing to its being manufactured in the shape of rope or yarn. It cannot escape from its package, or be spilled by accident. The patent gun cotton is entirely free from the danger of spontaneous combustion, and secures that degree of safety and certainty which, at the time of the original invention, the gun cotton of Schönben did not possess. Messrs. Thomas Prentice and Co. are now in a position to contract with the owners of mines, engineers, contractors, and governments for gun cotton prepared in the various forms required for their use. Mining charges will be supplied in the rope form, according to the diameters of bore required, and gun cotton match-line, as well as instructions for using it in mines, will be supplied with it.

The great advantage of gun cotton make its use in practice very much cheaper than its comparative price would appear to show; in blasting rock, for example, the rapidity and quantity of the work done, with a given expense of wages, &c., is largely in favour of gun cotton.

Messrs. THOMAS PRENTICE and Co. are also prepared to manufacture the gun cotton, and deliver it in the form of gun cartridges, adapted to every description of ammunition; all they require for this purpose being a drawing of the gun, gunpowder cartridges, and ammunition, with the specification of weights, sizes, and initial velocities.

Artillerists who prefer to manufacture their own cartridges may make special arrangements with the patentee through Messrs. PRENTICE and Co.

Stowmarket, March 10, 1864.

CREASE'S PATENT EXCAVATING MACHINERY,
FOR SUPERSEDING THE SLOW AND EXPENSIVE USE OF MANUAL LABOUR IN SINKING SHAFTS, DRIVING LEVELS, TUNNELLING, &c., is guaranteed to sink through any rock of average hardness at a minimum rate of 1 fm. per diem, and to sink shafts at the rate of 2 fms. in three days.

Mr. CREASE will undertake contracts for sinking shafts, driving levels, &c., at an enormous reduction of time and great saving in cost.

Applications to be addressed (for the present) to the patentee, Mr. E. S. CREASE, Tavistock, Devon.

By providing the power of calculating the time and cost to explore a certain depth and extent of ground, speculation in mining will be assimilated to commercial pursuits, with this unmistakable advantage—that when the ground has been once carefully and judiciously selected, and operations properly and systematically carried out for its development, there would be far less chance of unsatisfactory results than are met with by merchants and manufacturers in the usual routine of their business. As this important invention must beneficially interest the landowners, mine proprietors, merchants, and miners, we opine it will meet with immediate adoption. —*Mining Journal*.

BASTIER'S PATENT CHAIN PUMP,
APPARATUS FOR RAISING WATER ECONOMICALLY, ESPECIALLY APPLICABLE TO ALL KINDS OF MINES, DRAINAGE, WELLS, MARINE, FIRE, &c.

J. U. BASTIER begs to call the attention of proprietors of mines, engineers, architects, armers, and the public in general, to his new pump, the cheapest and most efficient ever introduced to public notice. The principle of this new pump is simple and effective, and its action is so arranged that accidental breakage is impossible. It occupies less space than any other kind of pump in use, does not interfere with the working of the shafts, and unless lighted with a degree of durability almost imperishable. By means of this hydraulic machine water can be raised economically from wells of any depth; it can be worked either by steam-engine or any other motive power, by quick or slow motion. The following statement presents some of the results obtained by this hydraulic machine, as daily demonstrated by use:—

1.—It utilizes from 90 to 92 per cent. of motive power.
2.—Its price and expense of installation is 75 per cent. less than the usual pumps employed for mining purposes.
3.—It occupies a very small space.
4.—It raises water from any depth with the same facility and economy.
5.—It raises with the water, and without the slightest injury to the apparatus, sand, mud, wood, stone, and every object of a smaller diameter than its tube.
6.—It is easily removed, and requires no cleaning or attention.

A mining pump can be seen daily at work, at Wheel Concord Mine, South Sydenham, Devon, near Tavistock; and a shipping pump at Woodside Graving Dock Company (Limited), Birkenhead, near Liverpool.

J. U. BASTIER, sole manufacturer, will CONTRACT TO ERECT HIS PATENT PUMP at his OWN EXPENSE, and will GUARANTEE IT FOR ONE YEAR, or will GRANT LICENSES to manufacturers, mining proprietors, and others, for the USE of his INVENTION.

OFFICES, 47, WARREN STREET, FITZROY SQUARE.

London, March 21, 1859. Hours from Ten till Four. J. U. BASTIER, C.E.

READ THE NEW MEDICAL GUIDE, written by a Physician, for the Self Cure of Nervousness, Indigestion, Loss of Memory, Dimness of Sight, Lassitude, &c. This work is illustrated with hundreds of cases and testimonials from patients, showing the treatment by which they were cured. Free by post to any address, on receipt of a stamped directed envelope.—Address to Messrs. SAIN, 8, Burton-crescent, Tavistock-square, London, W.C.

THE MINING SHARE LIST

BRITISH DIVIDEND MINES.

| Shares. | Mines. | Paid. | Last Pr. | Business. | Dividends Per Share. | Last paid. |
|---------|------------------------------------------------------|----------|----------|-----------|----------------------|--------------------|
| 1200 | Alderley Edge (cop.), Cheshire [L.] | 10 0 0 | — | — | 9 10 0 | 0 15 0—Feb. 1884 |
| 4000 | Bedford United (cop.), Tavistock [L.] | 2 6 8 | — | — | 13 6 0 | 0 2 6—April, 1884 |
| 1248 | Boscawen (tin, cop.), St. Just [L.] | 6 15 0 | — | — | 13 6 0 | 0 2 6—April, 1884 |
| 200 | Botallack (tin, cop.), St. Just [L.] | 91 5 0 | — | — | 47 15 0 | 0 2 6—April, 1884 |
| 6000 | Brondy (lead), Cardigan [L.] | 2 7 6 | — | — | 10 10 0 | 0 2 6—April, 1884 |
| 916 | Cargill (silver-lead), Newlyn [L.] | 15 7 33 | 30 31 | — | 7 15 0 | 0 2 6—April, 1884 |
| 1900 | Carn Brea (cop.), Illogan [L.] | 15 0 0 | 65 | — | 280 10 0 | 0 2 6—April, 1884 |
| 3000 | Clifford Amalgamated (cop.), Gwenn [L.] | 30 0 0 | 33 34 | — | 31 15 0 | 0 10 0—June, 1884 |
| 19000 | Copper Miners of England [L.] | 25 0 0 | — | — | 7 1/2 per cent. | —Half-yrly. |
| 40000 | Doitto ditto (stock) [L.] | 100 0 0 | — | — | 11 8 0 | 0 15 0—Mar. 1884 |
| 867 | Cwm Erlyn (lead), Cardiganshire [L.] | 7 10 0 | — | — | 11 8 0 | 0 15 0—Mar. 1884 |
| 1224 | Cwmystwith (lead), Cardiganshire [L.] | 60 0 0 | — | — | 11 8 0 | 0 15 0—Mar. 1884 |
| 1026 | Devon Gt. Con. (cop.), Tavistock [S.E.] | 1 0 0 | — | — | 11 8 0 | 0 15 0—Mar. 1884 |
| 388 | Dolcoath (cop.), Camborne [L.] | 128 17 6 | — | — | 768 10 0 | 0 7 0—May, 1884 |
| 13800 | Drake Walls (tin, cop.), Calstock [L.] | 2 1 0 | — | — | 0 18 0 | 0 1 6—May, 1884 |
| 512 | East Bascon (cop.), Redruth [S.E.] | 29 10 0 | 67 | — | 121 0 0 | 0 2 0—May, 1884 |
| 6144 | East Bascon (cop.), Redruth [S.E.] | 24 6 0 | 30 | — | 10 5 0 | 0 2 0—April, 1884 |
| 128 | East Pool (tin, cop.), Pool, Illogan [L.] | 32 0 0 | — | — | 97 10 0 | 0 2 0—June, 1884 |
| 1906 | East Wheel Lovell (tin), Wendron [L.] | 2 12 6 | 19 1/2 | — | 365 10 0 | 0 7 10—April, 1884 |
| 2800 | Foxdale (lead), Isle of Man [L.] | 25 0 0 | — | — | 64 0 0 | 0 10 0—May, 1884 |
| 6000 | Frank Mills (lead), Christow [L.] | 3 18 6 | — | — | 1 4 6 | 0 1 0—June, 1884 |
| 12500 | Great Laxey (lead), Isle of Man [L.] | 4 0 0 | 15 | — | 0 11 0 | 0 5 0—June, 1884 |
| 1788 | Great Wheal Fortune (tin), Breage [L.] | 18 6 0 | 14 15 | — | 5 15 0 | 0 10 0—Nov. 1883 |
| 5908 | Great Wh. Vor (tin, cop.), Helston [S.E.] | 40 0 0 | 34 | — | 3 19 6 | 0 12 0—June, 1884 |
| 119 | Great Work (tin), Gernoe [L.] | 100 0 0 | — | — | 5 0 0 | 0 5 0—Feb. 1884 |
| 1024 | Herodasot (tin), near Liskeard [S.E.] | 8 10 0 | — | — | 28 0 0 | 0 15 0—Feb. 1884 |
| 4000 | Liaburne (lead), Cardiganshire, Wales [L.] | 15 0 0 | — | — | 421 10 0 | 0 3 0—June, 1884 |
| 9000 | Marke Valley (cop.), Cardigan [L.] | 4 10 8 | 4 1/2 | — | 2 13 0 | 0 1 0—April, 1884 |
| 1800 | Miners Mining Co. [L.] (id.), Wrexham [L.] | 25 0 0 | — | — | 145 18 0 | 0 10 0—May, 1884 |
| 20000 | Miners Mining Co. of Ireland (cop.), lead, coal [L.] | 7 0 0 | — | — | 16 19 0 | 0 12 0—Jan. 1884 |
| 40000 | Mynydd (iron ore), Llanfyllter [L.] | 2 10 0 | — | — | 0 4 0 | 0 2 0—April, 1884 |
| 250 | Nanty Mines (lead), Montgomery [L.] | 20 0 0 | — | — | 7 0 0 | 0 1 0—June, 1884 |
| 6000 | North Birch Tor and Viller Cons. (tin), [L.] | 1 8 6 | — | — | 0 8 0 | 0 2 0—April, 1884 |
| 9296 | North Trekerby (cop.), St. Agnes [L.] | 1 9 0 | 2 1/2 | — | 0 13 0 | 0 2 6—Feb. 1884 |
| 4400 | Par Consols (cop.), St. Agnes [S.E.] | 18 10 0 | — | — | 86 19 0 | 0 2 6—Mar. 1884 |
| 302 | Parya Mines (cop.), Anglesey [L.] | 50 0 0 | — | — | 102 10 0 | 0 10 0—April, 1884 |
| 1772 | Pulbreen (tin), St. Agnes [L.] | 15 0 0 | — | — | 7 19 0 | 0 10 0—Nov. 1883 |
| 612 | Pulbreen (tin), St. Agnes [L.] | 8 0 0 | — | — | 1 0 0 | 0 1 0—July, 1883 |
| 1123 | Providence (tin), Uny Lelant [S.E.] | 10 6 7 | 40 | — | 73 5 0 | 0 1 0—May, 1884 |
| 6000 | Rosewall Hill and Ransom United [L.] | 2 18 0 | — | — | 0 10 0 | 0 1 6—May, 1884 |
| 512 | South Cardon (cop.), St. Cleer [S.E.] | 1 8 0 | — | — | 438 10 0 | 0 6 0—May, 1884 |
| 412 | South Tolgus (cop.), Redruth, Cornwall [L.] | 8 0 0 | 37 39 | — | 74 10 0 | 0 1 0—May, 1884 |
| 400 | S. Wh. France (cop.), Illogan [S.E.] | 18 10 0 | 67 1/2 | — | 370 13 6 | 0 1 0—Nov. 1883 |
| 496 | St. Day United (tin), Redruth [L.] | 14 0 0 | — | — | 600 0 0 | 0 1 0—June, 1884 |
| 840 | St. Ives Consols (tin), St. Ives [L.] | 8 0 0 | — | — | 490 10 0 | 0 10 0—May, 1884 |
| 6000 | Tincoff (cop. tin), Pool, Illogan [S.E.] | 9 0 0 | 19 | — | 14 18 0 | 0 10 0—June, 1884 |
| 4200 | Vigra and Clogau (cop.) [L.] | 4 0 0 | — | — | 6 2 6 | 0 1 0—May, 1884 |
| 6000 | West Bascon (cop.), Illogan [S.E.] | 1 10 0 | 10 1/2 | — | 25 8 0 | 0 5 0—May, 1884 |
| 3000 | W. Chiverton (id.), Farnham [S.E.] | — | 75 | — | 2 5 0 | 0 13 0—April, 1884 |
| 256 | West Damsel (cop.), Gwennap [L.] | 38 10 0 | — | — | 49 10 0 | 0 1 0—May, 1884 |
| 246 | W. Wh. Seton (cop.), Camborne [L.] | 47 10 0 | 100 | — | 409 0 0 | 0 4 0—June, 1884 |
| 512 | Wheal Bassett (cop.), Illogan [S.E.] | 8 0 0 | 95 | — | 600 0 0 | 0 1 0—June, 1884 |
| 1000 | Wheal Bassett and Grylls (tin), [L.] | 7 0 0 | — | — | 3 0 0 | 0 10 0—Oct. 1883 |
| 1024 | Wheal Grylls (tin), Farnham [L.] | 2 4 0 | — | — | 6 2 0 | 0 1 0—Sept. 1883 |
| 612 | Wheal Killy (tin), St. Agnes [L.] | 3 10 0 | — | — | 14 10 0 | 0 10 0—May, 1884 |
| 4295 | Wheal Kitty (tin), St. Agnes [L.] | 5 4 6 | 6 1/2 | — | 1 13 6 | 0 5 0—April, 1884 |
| 1024 | Wheal Kitty (tin), Uny Lelant [S.E.] | 2 0 6 | 12 1/2 | — | 9 10 0 | 0 7 6—April, 1884 |
| 896 | Wh. Margaret (tin), Uny Lelant [S.E.] | 9 17 6 | — | — | 76 5 0 | 0 1 0—May, 1884 |
| 1024 | Wh. Mary Ann (id.), Menheniot [S.E.] | 8 0 0 | 15 | — | 68 7 6 | 0 1 0—June, 1884 |
| 100 | Wheal Mary (tin), Lelant [L.] | 36 2 0 | — | — | 229 5 0 | 0 1 0—Mar. 1884 |
| 80 | Wheal Owles (tin), St. Just, Cornwall [L.] | 70 0 0 | — | — | 343 8 0 | 0 5 0—May, 1884 |
| 396 | Wheal Oves (tin, cop.), Camborne [L.] | 58 10 0 | 225 | — | 174 15 0 | 0 4 0—June, 1884 |
| 1040 | Wh. Trevelyan (id.), Liskeard [S.E.] | 5 17 0 | — | — | 49 12 0 | 0 12 6—May, 1884 |
| 2044 | Wheal Tremayne (tin), Gwennap [L.] | 6 11 3 | — | — | 6 13 0 | 0 5 0—Nov. 1883 |
| 7600 | Wicklow (cop.) [L.] | 2 10 0 | — | — | 14 11 0 | 0 6 0—April, 1884 |

* Dividends paid every two months. † Dividends paid every three months.

BRITISH MINES WITH DIVIDENDS IN ABEYANCE.

| | | | | | | |
|-------|-------------------------------------------|---------|--------|---|----------|-------------------|
| 2400 | Boscan (tin), St. Just [L.] | 20 10 0 | — | — | 36 10 0 | 0 1 0—Mar. 1882 |
| 6000 | Chiverton (lead), Farnham [S.E.] | 5 0 0 | 11 1/2 | — | — | — |
| 246 | Conduff (cop. tin), Camborne [L.] | 45 0 0 | — | — | 85 0 0 | 0 2 0—June, 1882 |
| 2400 | Cook's Kitchen (cop.), Illogan [L.] | 17 15 0 | 21 | — | 2 7 0 | 0 7 0—May, 1882 |
| 1024 | Copper Hill (cop.), Redruth [L.] | 12 0 0 | 8 9 | — | 2 7 0 | 0 7 0—May, 1882 |
| 1055 | Cradock Moor (cop.), St. Cleer [L.] | 8 0 0 | — | — | 7 12 0 | 0 4 0—July, 1882 |
| 200 | Derwent Mines (all-lead), Durham [L.] | 300 0 0 | — | — | 147 0 0 | 0 5 0—June, 1882 |
| 4076 | Devon and Cornwall (cop.), Tavistock [L.] | 6 6 3 | — | — | 0 10 0 | 0 2 6—Feb. 1882 |
| 3000 | Dymghem (lead), Wales [L.] | 12 6 0 | — | — | 0 17 6 | 0 2 6—Jan. 1882 |
| 840 | Fowey Consols (cop.), Tavydreadth [L.] | 4 0 0 | — | — | 41 9 0 | 0 2 6—June, 1880 |
| 6000 | Great South Tolgus, Redruth [L.] | 0 14 0 | — | — | 7 18 0 | 0 5 0—Dec. 1881 |
| 10240 | Gunnis Lake (Clitters) Adit [L.] | 0 2 0 | — | — | 2 3 0 | 0 1 6—Mar. 1882 |
| 160 | Levant (cop. tin), St. Just [L.] | 2 10 0 | — | — | 1091 0 0 | 0 5 0—May, 1880 |
| 400 | Mount Pleasant (lead), Mold [L.] | 4 0 0 | — | — | 18 18 0 | 0 7 6—Aug. 1882 |
| 5000 | Orehead (lead), Flintshire [L.] | 0 8 0 | — | — | 0 10 0 | 0 8 0—Mar. 1882 |
| 6000 | South Exmouth (lead), Christow [L.] | 1 10 0 | — | — | 0 5 0 | 0 5 0—Dec. 1882 |
| 280 | Spearhead Moor (tin, cop.), St. Just [L.] | 32 17 9 | — | — | 9 16 0 | 0 1 0—June, 1882 |
| 872 | Trevelyan Consols (tin), St. Ives [L.] | 13 10 0 | — | — | 7 0 0 | 0 10 0—Sept. 1880 |
| 1000 | Trumpet Consols (tin), near Helston [L.] | 11 10 0 | — | — | 11 0 0 | 0 2 0—Mar. 1882 |
| 12000 | Twelve Apostles Amal. (id.), Wrexham [L.] | 1 0 0 | — | — | — | — |
| 1024 | Wendron Consols (tin), Wendron [L.] | 18 3 10 | — | — | 8 15 0 | 0 1 0—Jan. 1881 |
| 60 | West Barton Hill (lead), Yorkshire [L.] | 60 0 0 | — | — | 14 10 0 | 0 3 0—June, 1881 |
| 1024 | West Cardon (cop.), Liskeard [S.E.] | 5 0 0 | — | — | 101 1 3 | 0 10 0—Oct. 1882 |
| 1024 | Wheal Friendship (cop.), Devon [L.] | — | — | — | 295 10 0 | 0 5 0—Feb. 1881 |
| 6100 | West Fowey Consols (tin and cop.), [L.] | 7 10 0 | — | — | 0 19 0 | 0 3 0—May, 1882 |

FOREIGN DIVIDEND MINES.

| | | | | | | |
|--------|------------------------------------------|---------|-------|---|-----------------|-------------------|
| 30000 | Australian (cop.), S. Australia [S.E.] | 7 7 6 | — | — | 0 1 0 | 0 1 0—Dec. 1883 |
| 2464 | Burra Burra (cop.), South Australia [L.] | 5 0 0 | 65 | — | 315 0 0 | 0 8 0—Mar. 1884 |
| 6000 | Central American (cop.), [L.] | 40 0 0 | 35 | — | 99 12 0 | 0 1 0—Dec. 1883 |
| 12000 | Cobre Copper Co. (cop.), Cuba [S.E.] | 40 0 0 | 35 | — | 0 9 0 | 0 9 0—Dec. 1883 |
| 100000 | Don Pedro No. Del Rey [L.] | 0 10 0 | — | — | 1 10 0 | 0 2 6—Feb. 1884 |
| 70000 | English and Australian [S.E.] | 5 0 0 | — | — | 7 1/2 per cent. | —Yearly. |
| 18000 | East Indian Coal, Calcutta [L.] | 10 0 0 | — | — | 0 11 4 | 0 3 0—Feb. 1884 |
| 25000 | Fortuna (lead), Spain [L.] | 2 0 0 | 4 | — | 19 15 0 | 0 10 0—June, 1883 |
| 28000 | Gen. Mining Assoc., Nova Scotia [S.E.] | 30 0 0 | 22 | — | 0 12 0 | 0 1 0—June, 1884 |
| 80000 | Kapunda Mining Co., Australia [S.E.] | 1 0 0 | 1 1/2 | — | 0 11 2 | 0 5 0—Mar. 1882 |
| 18000 | Linares (id.), Potosi, Spain [S.E.] | 3 0 0 | — | — | 1 7 3 | 0 7 3—Jan. 1884 |
| 10000 | Portuguese (all-lead), France [S.E.] | 20 0 0 | 9 | — | 0 11 0 | 0 1 6—Jan. 1884 |
| 97500 | Port Phillip (gold), Clunes [S.E.] | 1 0 0 | 1 1/2 | — | 63 15 0 | 0 2 10—June, 1884 |
| 11000 | St. John del Rio [L.] | 30 15 0 | 45 | — | 2 14 0 | 0 5 0—May, 1884 |
| 43174 | Unit. Mexican (all-lead), Mexico [S.E.] | 28 5 0 | — | — | 0 10 0 | 0 5 0—May, 1884 |
| 10000 | Vancouver (coal) [L.] | 5 0 0 | — | — | 0 7 0 | 0 3 0—Nov. 1883 |
| 20000 | West Canada Mining Company [L.] | 1 0 0 | — | — | 0 5 0 | 0 5 0—Aug. 1883 |
| 6000 | Yudamutana (cop.), S. A. [L.] | 3 0 0 | 3 | — | — | — |

FOREIGN MINES WITH DIVIDENDS IN ABEYANCE.

| | | | | | | |
|-------|-------------------------------------|--------|---|---|--------------|------------------|
| 10000 | Altan and Qumangan Unl. (cop.) [L.] | 4 10 0 | — | — | 4 5 0 | 0 15 0—Nov. 1883 |
| 10000 | Copago Mining Company, Chili [S.E.] | 16 0 0 | — | — | 6 18 0 | 0 10 0—Nov. 1882 |
| 10000 | Gt. Barrier Land, Min. & Co. [L.] | 10 0 0 | — | — | 18 per cent. | —May, 1883 |
| 10000 | Lustanian (of Portugal) [S.E.] | 2 0 0 | — | — | 0 19 0 | 0 1 0—Feb. 1882 |
| 10815 | Mariquita and New Granada [S.E.] | 1 0 0 | — | — | 0 9 6 | 0 1 6—July, 1883 |

NON-DIVIDEND FOREIGN MINES.

| Shares. | Mines. | Paid. | Last Pr. | Bus. done. | Last Call. |
|---------|--------------------------------------------------------------|---------|----------|------------|--------------|
| 100000 | Anglo-Brazilian (gold) [L.] [S.E.] | 0 5 0 | — | % | —Dec. 1883 |
| 30000 | Alamillos (lead), Spain [L.] | 0 12 6 | — | — | —Mar. 1884 |
| 20000 | Bear's Tin Streaming Company [L.] | 0 17 6 | — | — | —Oct. 1883 |
| 15000 | Cape Copper Mining Company [L.] [S.E.] | 7 0 0 | 12½ | 11 12 | —Feb. 1884 |
| 25000 | Capula (silver), Mexico [L.] [S.E.] | 1 0 0 | — | % | —Feb. 1884 |
| 17000 | Central Italian (copper) [7000 £2 paid] | 0 6 0 | — | % | —Jan. 1883 |
| 10000 | Copago Smelting [L.] [S.E.] | 10 0 0 | — | — | —Fully paid. |
| 75000 | Dun Mountain (copper), New Zealand [L.] [S.E.] | 1 0 0 | — | — | —Fully paid. |
| 50000 | East del Rey (gold), Brazil [L.] [S.E.] | 1 5 0 | — | — | —Oct. 1883 |
| 30000 | East Kongberg Native Silver Mining Co. of Norway [L.] [S.E.] | 1 12 0 | — | — | —Dec. 1883 |
| 12000 | El Chico Mining and Reduction (silver) [L.] [S.E.] | 3 0 0 | — | — | —Mar. 1884 |
| 20000 | Elbe Colliery Company, Bohemia [L.] | 1 0 0 | — | — | —Fully paid. |
| 30000 | Elisaveta and Bardswie (copper), Jamaica [L.] | 0 18 0 | — | — | —July, 1883 |
| 8000 | English and Canadian Mining Company [L.] | 5 0 0 | — | — | —Fully paid. |
| 40000 | Fortuna (copper), West Australia [L.] | 2 0 0 | — | — | —Fully paid. |
| 20000 | Fortino and Bolivia (gold), New Granada [L.] [S.E.] | 0 10 0 | — | — | —Mar. 1884 |
| 80000 | Great Northern (copper), South Australia [L.] [S.E.] | 1 10 0 | — | — | —June, 1882 |
| 24000 | Hindostan (copper), Bengal [L.] [S.E.] | 3 0 0 | — | — | —Feb. 1883 |
| 4000 | Hope Silver-Lead and Copper Mining Co. [L.] [S.E.] | 25 0 0 | — | — | —Fully paid. |
| 10000 | Karbita Colliery Company [L.] | 1 0 0 | — | — | —Fully paid. |
| 80000 | Lagunazo (sulphur, copper), Portugal [L.] | 1 0 0 | — | — | —Fully paid. |
| 100000 | Montes Aneiros (gold), Brazil [L.] [S.E.] | 2 0 0 | — | 3½ 2½ | —Fully paid. |
| 2000 | New Burra Burra (copper) (Australia) [L.] | 5 0 0 | — | — | —Aug. 1882 |
| 10000 | New Grand Duchy of Baden (silver-lead), near Freiburg [L.] | 1 0 0 | — | — | —Nov. 1883 |
| 60000 | North Rhine Copper of South Australia [L.] [S.E.] | 0 17 6 | — | — | —Fully paid. |
| 60000 | Nova Scotia (lead and gold) [L.] [S.E.] | 1 0 0 | — | — | —Nov. 1882 |
| 15000 | Pachuca Silver Mining Company, Mexico [L.] [S.E.] | 1 0 0 | — | — | —June, 1883 |
| 50000 | Panulillo (copper) [L.] [S.E.] | 1 0 0 | — | 1½ 2 | —Feb. 1884 |
| 6000 | Peel River Lead and Mineral [Limited] | 100 0 0 | — | — | —Stock. |
| 20000 | Quebrada (copper), Venezuela [L.] [S.E.] | 4 10 0 | — | — | —Jan. 1884 |
| 10000 | San Roque (lead), Spain [L.] | 5 0 0 | — | — | —Fully paid. |
| 60000 | Santa Barbara (gold), Brazil [L.] [S.E.] | 0 12 6 | — | % | —Jan. 1884 |
| 120000 | Scottish Australian Mining Company [L.] [S.E.] | 0 17 6 | — | % | —Feb. 1884 |
| 15000 | South Europe Mining Company, Spain [L.] [S.E.] | 3 0 0 | — | % | —May, 1880 |
| 12000 | Teplitz Colliery Co., Bohemia [L.] [S.E.] | 3 0 0 | — | — | —June, 1883 |
| 50000 | Vaigsternard Mining Company [L.] [S.E.] | 6 0 0 | — | — | —Mar. 1884 |
| 20000 | Venezuela (copper), Venezuela [L.] [S.E.] | 1 0 0 | — | 1½ | —Fully paid. |
| 45000 | Viter Emanuel (copper), Italy [L.] | 3 0 0 | — | — | —Fully paid. |
| 1000 | Western Africa Malachite (copper) [L.] | 110 0 0 | — | — | —Oct. 1882 |
| 12000 | Wien Ellen (copper), South Australia [L.] [S.E.] | 6 0 0 | — | — | —Fully paid. |
| 50000 | Worthing (copper), South Australia [L.] [S.E.] | 1 0 0 | — | 1 | —Fully paid. |